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THE  
FLORAL WORLD  
AND  
GARDEN GUIDE.

EDITED  
BY  
SHIRLEY HIBBERD, ESQ., F.R.H.S.

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ROSA REGELIANA.

# THE FLORAL WORLD

AND

## GARDEN GUIDE.



### THE WILD ROSE OF JAPAN.

(With Coloured Plate of *Rosa Regeliana*.)



THIS is a departure from our custom of selecting for illustration the finished production of the florist, to take, as in this case, a wilding flower for the adornment of our pages. But the wild rose here represented is worthy of the distinction it obtains thereby for many reasons.

In the first place, it is beautiful, as the accompanying print declares, although the best possible representation of a single flower can convey no idea of the splendour of the plant when dressed with myriads of its large, richly-coloured blooms, or, as it afterwards appears, loaded with large scarlet hips of the shape and size of Siberian crab-apples. But this rose is not only beautiful in itself, for it differs considerably in its typical characters from all the garden roses at present in cultivation, and therefore it offers to the raiser of seedling roses the wonderful advantage of new blood, with distinct and striking characters, and all the promise of a new and splendid race of hybrid roses to make a dashing change away from the groove into which, as respects the properties of garden roses, we appear to have settled. We must allow the French horticulturists to be better judges of this matter than ourselves, and what they think about it may be judged by an extract from *Illustration Horticole* (3sr., pl. 47), to which we are indebted for the figure. M. Andre says:—"The tribe of horticulturists who honour themselves with the name of Rosarians ought to hail with joy this new Japan rose. We know how much the distinguished raisers of the queen of the flowering world—the Verdiers, the Margottins, the Grangers, etc., have distributed through the world innumerable garden varieties, and how much also they deplore the paucity of forms and of new colours, as their roses are more and more perfect, and their collections more select. The rose appears to have exhausted its range of colourings and variety of contour. The raisers weary in a circle without end, and are thereby reduced to send out charming novelties,



of which the only fault is their resemblance to those already known. We shall soon be reduced, if fashion still demands fresh supplies, to return to the primitive generic kinds. Before coming to that we believe, however, that there still remain to raisers other fields for exploration, other types to attempt, a new sap to infuse into their future productions. The species which we describe will more especially be of use for such a purpose. It constitutes a form entirely distinct from all its congeners, and its trace is easily betrayed in hybridizations which have been obtained through its aid. Its dwarf growth, its short and robust branches, of a white-ash colour, garnished with numerous silvery spines and glandulous hairs, its long and fine leaves, regularly toothed, have no analogy, within our knowledge, in the whole genus *Rosa*."

*Rosa Regeliana* was sent from Japan to Europe by M. Maximowicz, the celebrated Russian explorer, in 1868. It is a sub-shrub, dwarf in growth, with short branches, which are at first slender and drooping, but afterwards upright, of an ashy-grey. The spines on the branches are small and weak, the leaf-stalks are greyish, the leaves robust and firm, of a fine green colour. The flowers occur in large corymbs, the sepals long and pointed, the petals broad and stout, the colour deep red crimson. Not the least important among the many merits of this plant is its perfect hardiness. It has had the trial of the severe winters in the garden of M. Linden at Brussels, and has suffered nothing. It is remarkably beautiful when covered with its showy flowers in July, and is again a most attractive object when its numerous globular fruits are ripe later in the season.

S. H.

## FORMING AND PLANTING SMALL FRUIT GARDENS.

BY WILLIAM COLE,

Head Gardener, Faling Park, Middlesex.



THE cultivation of the choicer kinds of fruit is extending in the gardens of the middle classes, I have ventured to offer a few useful hints, which it is to be hoped will be of service to owners of small gardens who are commencing fruit-growing in earnest.

The ground fixed upon for planting with fruit trees should be trenched up as deep as the soil will allow, without turning up stones or clay. If an entire quarter is to be planted, the whole space should be trenched; but supposing it is intended to plant a row of trees alongside the walk, trench about a yard in width the entire length. Fruit-trees require very little manure when first planted, if the soil has any heart at all in it. It is after they have been planted some time and are in full bearing that liberal top-dressings of manure are needed. If the soil is poor, a moderate dressing, worked thoroughly throughout the entire depth of the soil, will materially aid the trees in giving them a good start. Ordinary soils will be benefited most by having about three inches of fresh soil spread over the surface. Where building is going on, the top spit may be had for little more

than the cost of carting, and this infuses new life into the soil for a small cost. But most soils will do very well without a dressing, provided the soil is well stirred; therefore the expense of manure or fresh soil must not stand in the way of having a few fruit trees.

The holes in which the trees are to be placed, should be large enough to spread the whole of the roots out horizontally, and in a way that they do not crowd each other. The nicely pulverized top soil should be used to cover the roots, and the remaining portion of the hole filled in with what has been thrown out in making the hole. After the roots are covered with six inches of soil, every remaining shovelful must be well trodden in, for it is impossible for the roots to take a firm hold of loose soil. A little discretion must be used in treading the soil, for if rather heavy or wet, or the two combined, it must not be trodden too much, or it will be so compact that the young fibrils will be unable to penetrate it, and the trees make poor progress in consequence. Another important point frequently lost sight of is the securing the trees to stakes. When this is neglected, as is frequently the case, the roots become loosened and strained, thus preventing their properly performing the functions allotted them. When the trees are planted late in the season, or a very dry summer follows their shift, a thick mulch of whatever can be obtained will render them great service.

I have pointed out a few of the important points necessary to be observed in planting trees, and we will now turn our attention to the consideration of the best form of tree and its after-management. For planting out in the open quarter, pyramids are decidedly the best; but for low walls those trained horizontally are preferable, as they can be managed better than fan-trained trees. What is known as a horizontally-trained tree has an upright centre stem with side-branches trained at a right angle therefrom. Espaliers are trained in much the same manner as the latter. It must be understood that the only fruits recommended for planting in small gardens are apples, pears, plums, and cherries. Select trees with clean straight healthy stems and side branches free from wounds and scars, and with plenty of fibrous roots. The size of the tree is not of very much importance, but for pyramids those about three feet high, nicely furnished, should be selected.

Avoid the incessant stopping of the young growth, which is so frequently recommended, as it only encourages the production of useless wood. The shoots require stopping once only, and this should be done in August. The winter pruning will merely consist in thinning out the branches where they are too crowded and shortening back a few that are likely to spoil the symmetry of the tree. The pruning must be regulated by the vigour of each tree. Those growing very strong must have a greater length of wood than others that have grown slowly. The trees trained against the wall should have horizontal branches about a foot from each other. These will require tacking to the wall, otherwise the summer pinching must be done in a similar manner to the pyramids.

Root-pruning is an important matter in dealing with fruit trees in a small space, but exceedingly simple. Some time during the

autumn open out a trench all round at a reasonable distance, say eighteen inches from the main stem, and trim the roots back with a knife. At the same time, thrust a spade underneath, so that every root may be severed that has a downward tendency. When this is done, fill in with the surface soil or a little fresh compost, and make all firm again. In rich soils, where the trees make a strong luxuriant growth in spite of the root-prunings, they should be taken entirely up and replanted every second year. When this is done carefully, there will be no lack of flowers or fruit, as the trees will have an abundance of short fibry roots close to the surface, and in the best part of the soil, instead of a few long rambling roots down in the cold subsoil. After the trees are in bearing, and if the soil is poor and hungry, if it can be afforded, spread three or four inches of rotten manure over the soil early in the summer. This will keep the roots cool during the summer, and be nicely decayed for mixing with the soil when the trees are lifted. Whether this dressing is needed every second or third year will depend upon the vigour of the trees. All that is wanted is to keep the trees strong, to enable them to bring to perfection a heavy crop of fruit, and so long as they do this, no manure will be wanted. If the trees are to be kept down to a height of five or six feet, they should be planted about six feet apart from each other in every direction, for it is useless to crowd them so that they do not receive an abundance of light and air. The trees must not be over-cropped, or planted too deep. A thorough syringing occasionally on the evenings of dry days during the summer will materially aid in keeping them free from insects.

The selection of sorts must now occupy our attention, and those kinds only that are hardy, free-bearing, and of average quality will be named. *Cherries*—May Duke, Royal Duke, Morello. *Apples*—(Six dessert)—White Juneating, Red Astrachan, Irish Peach, Kerry Pippin, Ribston Pippin, Ashmead's Kernel; (six kitchen)—Keswick Codlin, Hawthornden, Blenheim Pippin, Striped Beefing, Herefordshire Pearmain, Bedfordshire Foundling. *Pears*—Summer Doyenné, Williams' Bon Chrétien, Beurré Superfin, Louise Bonne of Jersey, Beurré d'Arenberg, Josephine de Malines, Bergamotte d'Esperen. *Plums*—(Six dessert)—Early Favourite, Green Gage, Jefferson's, Kirke's, Reine Claude de Bavay; (six kitchen)—Prince of Wales, Pond's Seedling, Victoria, Diamond, Late Black Orleans, Belle de Septembre. Supposing there is not space enough to plant all the above, it is of little consequence which are selected.

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GARDENERS' COMPANY.—From the "City of London Directory" we learn the following particulars respecting this Company:—Charters.—This Company was incorporated by the 3rd James I. September 18th, 1605; re-incorporated by the 14th James I. November 9th, 1616. The bye-laws for their good government were confirmed by the Lord Chancellor, Lord Treasurer and Chief Justices of the King's Bench, July 1st, 1606. Arms:—The field a landscape, the base variegated with flowers; a man proper, vested round the loins with linen *argent*, digging with a spade, all of the fust. Crest, on a wreath, a basket of fruit all proper. Supporters, two emblematical female figures with cornucopie, representing "Plenty." Motto, "In the Sweat of Thy Brow shalt Thou Eat Thy Bread." Fees Payable:—Upon taking up the freedom, by patrimony or servitude, £1 10s.; and by purchase, £1 17s. 6d. This Company has ceased to exist.

## HOW TO PREVENT THE DROPPING OF CAMELLIA BUDS.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington, N.



HERE'S nothing new to be said about camellias, and I hope nobody will expect anything new. Well, I have been pressed hard to tell the readers of the *FLORAL WORLD* how I manage to fill my boxes with white camellias for the market, from the beginning of October until the end of February, from a very small house and a very few plants. It's done by good management. My trees are nearly all in tubs, and they are now so loaded with buds that they look as if a heavy shower of buds had fallen upon them. They have no particular treatment, and there is really no secret to tell. Several years ago I shifted my trees out of starving pots into tubs, excepting a few which were planted out, by what would be called a large shift, for I wanted big trees and flowers by thousands. The soil used was a good turfy loam only. When they were tubbed, a ring of clay was put on the soil round the stem of each tree, in order to restrict the watering to the old ball, and keep the new soil dry, or nearly so, for a time. By pouring the water within this circle of clay the actual roots were nourished, and the new soil was not made sour. By degrees the roots pushed into the new soil, and I could tell how the roots were pushing by the growth of the shoots, for the head of a tree will always tell you what the roots are doing. I kept the rings of clay on for at least a year, and then removed them, and watered the whole of the soil in the tubs. Now as to watering: in the first place, we do not use pure water at all, but water tainted with sewage; in other words, it is weak liquid manure—very weak, but it always contains something for plants to feed upon. What stuff it is to talk of giving one dose of strong manure water and so many doses of pure water. If once you begin with manure-water, go on with it all the while your plants are growing or flowering, but have it so weak that it will not force the growth into rankness, or cause the flowers to burst, or show impure colour. When watering is going on in the houses here, there is a perceptible odour afloat; that to me is pleasant, for I know that inodorous manures are of little value. Where camellias are grown the house should be rendered unsavoury to the nose at every watering of the plants. Ventilation will soon make it sweet again.

Now about thinning and buds falling, I may as well say that I cannot afford to thin; I cannot afford to let a bud fall. No; for me to do so would be absurd, and for anybody to do so is, in my opinion, a rather unwise proceeding. But the trees make more buds than they can open, you say. Nothing of the kind; but I dare say the perpetual supply of extremely weak manure water has something to do with the enormous production of flowers which render my camellias the most profitable things I grow. No. I say, then, I never thin the



buds, and never have any fall ; but, mind you, I must have trees in perfect health, if all the buds are to be allowed to open.

With respect to the falling of the buds, I can only say that good management is the secret of success, and I suppose everybody knows as much as that. But I will tell you that, notwithstanding the cares and anxieties of a large and increasing business, I make it a rule to look after the camellias myself. What heat, think you, are we keeping them at now to fill our boxes with flowers for the market twice a week ? Well, just enough heat to keep out frost, and no more. Perhaps if I pushed up the heat smartly the buds might come down like a shower of rain ; they look at present as if a shower of buds had fallen and just stopped where they are. Well, we shall not push up the heat, but be content to take it easy, and have a long supply of flowers, and every bud will open in due time.

I know how it is that horticultural writers are compelled to harp ever on this much-worn string. People put their camellias out of doors in the summer in a well-selected spot, and forget them. The roots get dry, the bark gets hard—for, you know, that must happen with dry roots—but the plants, being capable of bearing bad treatment, still live and look very well. By and by they are housed, and, being dry at the root, they get an extra dose of water. For a time the water runs away next the sides of the pot, and does no good ; but oft-repeated doses tell at last, and the roots get moistened through. Thereupon there is a general swelling of all the joints, and a softening of the bark, and in this process the buds are pushed off, and the prospect of an abundance of flowers is suddenly destroyed.

## A CHEAP AND EFFECTUAL WAY OF HEATING SMALL GREENHOUSES.



HAVING very frequently seen in the FLORAL WORLD inquiries from correspondents as to the best method of heating small greenhouses, I purpose, with our Editor's permission, giving the result of my experience in the (to amateurs) all-important matter of keeping their pets alive during the winter, with the least possible expense and trouble.

I need not give a detailed account of my many experiments and my many failures ; it will only be necessary here for me to say that I believe I have succeeded at last in getting an apparatus fixed that will heat a small greenhouse, sufficiently to keep the frost out, at a very small expense.

The size of my house is twelve feet by nine feet, and it stands about thirty yards distant from the cellar, in which the gas-meter is fixed. I have a three-quarter inch iron pipe running from the meter close to the front of the house. I thought it best to have rather a large size pipe to conduct the gas, as the water will sometimes condense in pipes in the winter time ; and, of course, if the pipes are of small size, there is more danger of the gas going out.



I have a small sheet-iron box, about fifteen inches square, which is fixed inside the house, close to where the gas-pipe comes, and proceeding from the top of the box, is some two-inch stove-piping, to carry away the fumes of the gas through the roof into the open air. The box is made so that there can be no escape of the fumes in the house. Inside of the box is a small saddle-shape copper boiler, which holds just five pints, and, proceeding from the top of the boiler, and through the top of the box, or cover, is a piece of one-inch lead pipe, which is carried straight for about two feet, then bent down and attached to a one-inch iron pipe which runs round the house, and which returns again through the box into the boiler at the bottom. Under the boiler is fixed a small Bunsen burner gas stove (which any gas-fitter will supply). To prevent the fumes of the gas getting into the house, I have a small door in front of the iron box, so that I can light it from the outside.

The cistern is fixed just at the bend of the flow-pipe, the furthest point from the boiler, with a tap to turn the water on or off, although I always leave it on; and at the same point I have a bit of thin composition piping fixed in the iron pipe, and carried out into the open air as a kind of safety-valve. A small tap, which is fixed in the pipe at the highest point just over the boiler, must be turned on before the gas is lit, to allow the air to escape out of the pipes, or the water will not circulate.

I have nearly seventy feet of piping, and, after the gas has been lit an hour, it is nice and hot all round. The whole affair can be made and fixed by any gas-fitter for a little over three pounds, and I can only say, in conclusion, that it works admirably, and the only trouble I have met with it is, to see that the cistern is supplied with water about once a-week, and to turn the gas on at night, and off again in the morning.

*Leicester.*

H. D..

## THE CULTIVATION OF SEA-KALE.—No. I.

BY A KENTISH GARDENER.

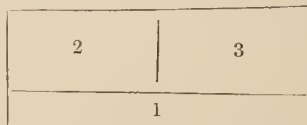
### FORCING THE ROOTS.

**D**URING the winter months this delicious vegetable is thoroughly appreciated, and as some cultivators fail in growing it so successfully as they would wish, I intend, with your permission, to offer a few hints on preparing and forcing the roots. As you so well know, my experience in the cultivation of this and other vegetables is very extensive, and if the advice here given is acted upon, failure is simply impossible. In this communication it is my intention to deal with forcing the roots, as that work must now be commenced in earnest, and next month the cultivation of the roots, preparatory to their being forced, will receive attention, as there will then be plenty of time for preparing the ground, sowing the seed, and carrying out other necessary details.

January.

The old system of pot-forcing on the ground, although good in its day, is not worthy of the age in which we now live. It is not only troublesome and uncertain, but from first to last it is an untidy and unsatisfactory affair; it necessitates that a large collection of leaves, etc., must be continually upon one spot at some part of the garden all the winter; and which the neatest and most particular hand cannot prevent being unsightly. If only for this reason, there is ample justification for saying it is not worthy of adoption, especially as there are other means equally as simple, if not more certain, that any and every cultivator may follow.

The best and most suitable plan for all moderately large families is to force it in a small two-light frame. I proceed in the following manner:—A bed is made up chiefly of tree leaves, but with a little fermented manure just to form the outsides, to bring the bed into shape. This is done about the second week in November, because we require it as early as it can be had, but for small families New Year's Day will be quite soon enough to commence. The leaves, etc., are well beaten with a fork as the work of making up is going on. A height of four feet at back, and three and a-half feet in front, will give out sufficient heat for the purpose, as not more than a bottom-heat of  $60^{\circ}$  is wanted; indeed, anything above  $60^{\circ}$  will induce a spindly weak growth. This bed may be made in any out-of-the-way corner of the garden or frame-ground, and after it has been made a few days, put in about six inches of leaf-soil. This will keep down the steam, and will serve to plant the roots in. We usually put on a frame eight feet by four, and it is divided into three parts, as in the accompanying plan:—



These parts are numbered 1, 2, and 3. No. 1 compartment is planted about the last week in November; but as six inches of soil will not admit of the roots being planted down right, they may be laid in a little on the slant, so as to have the soil up just under the crown, and these ought to be three inches from each other, and gently watered with tepid water after the planting is finished. The frame should then be covered up, first with a mat, and over that a layer of short hay two inches thick, with another mat at top. This will effectually exclude all light, and if the heat is what it ought to be, some well-grown kale will be fit for table at Christmas. Nos. 2 and 3 compartments are filled at an interval of about a fortnight, so that there are always plants in three different stages of growth; and in this manner, by filling up with fresh plants every time a part is all cut, a succession may be kept up either till the plants are exhausted or the season over.

But this cannot be done with the heat of the bed alone, for in the course of two months this will be exhausted, and linings will be

necessary. It is possible there may be heat enough to mature the growth of Nos. 1 and 2, but by that time we shall be in the coldest season of the year, and it will be a safer plan to give No. 3 a lining as soon as planted. This is done by simply putting a good thick layer of fresh stable manure round that part of the frame which has been last planted. This will want turning and well shaking up about every ten days, to renew the heat. I am aware there appear to be a good many little matters to attend to in growing it in this way, but when actually put into practice, they are all so simple and straightforward that an ordinary garden labourer can manage them. It appears necessary to add that a very little air should be given every other day for about a couple of hours, to let out any steam that may arise from the heat of the bed. This will insure a sweet and pure atmosphere, which, if not attended to, might, perhaps, be detrimental to the flavour of the produce; but, on all occasions, or on whatever plan of forcing is adopted, it is important to remember that the admission of light or air for any length of time will discolour the growth, which must be avoided.

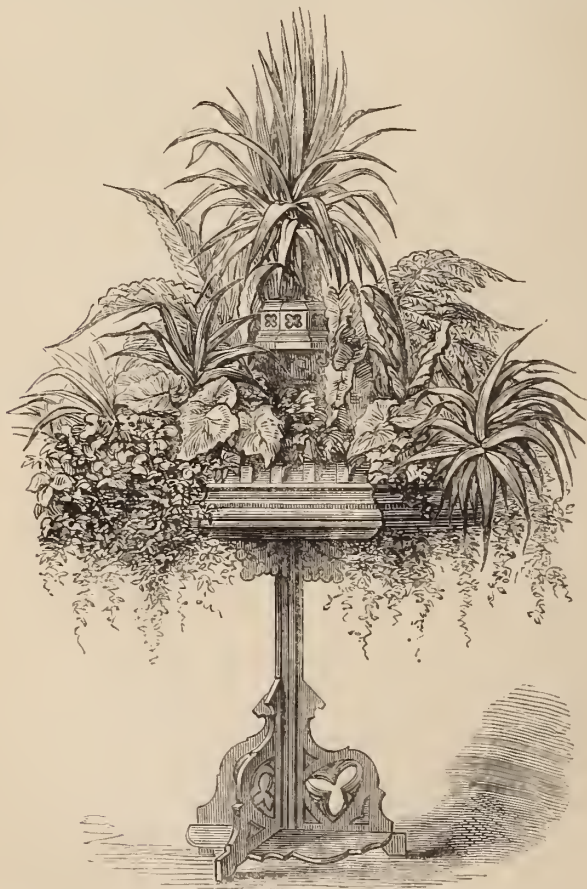
For very small gardens, the following plan will be found serviceable and convenient. Procure a good box, about four feet long, two feet wide, and as much in depth. Take this to a warm, close cellar, and in it put six inches of moderately light dry soil. In this soil place the crowns, and give them a gentle watering, and in the course of six or seven weeks, if the place is a moderately warm one, some good kale may be expected. I once saw some very good grown under the stage in a greenhouse. A sort of box was formed of boards, and a covering of mats, and over the mats was thrown an old oil-cloth to carry off the wet; but it cannot be grown in such a position very early in the season.

Those who are obliged to have a large supply of early spring vegetables will find this a very useful plan to grow a breadth to cut from without forcing or blanching. Plant under a north wall say fifty strong plants a foot apart each way. Keep them clean, and fork between them once a year. Do not force them or cover them, but let them come on naturally, which they do just as the spring greens and broccoli are over, and it is just at this season that green vegetables are scarce, and consequently we very often have to commence cutting the spring cabbage at a sacrifice. Now, the fact that this method of growing sea-kale will serve to fill up a gap between these two crops is a very important one, for apart from the great advantage to be gained by giving the cabbage bed another ten days or a fortnight to grow larger, it is a good and delicious vegetable—in my opinion little inferior to asparagus, but I am not presuming it would suit the taste of dainty epicures. I have only now to add that it is never in better condition than when it has grown to the length of eight or nine inches.

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## DESIGN FOR A FLOWER-BASKET.

**W**E are indebted to M. Ed. André, Editor of the *Illustration Horticole*, for the subjoined elegant design for a flower-basket, adapted for a reception-room or entrance-hall, or, indeed, for the open air. It is formed of wood, and may be quite rustic in general character, or neatly moulded and carved on the exterior, as shown in the figure. An amateur in carpentry would experience no difficulty in the con-



struction of such a basket with the design to guide him. The interior of the basket is lined with zinc, perforated for drainage; the bottom is prepared with broken crocks or wood charcoal, to prevent stagnation of moisture, and then filled with suitable soil for the plants. It will be seen that the furnishing consists of fine



foliage plants of graceful habit, such as agaves, yuccas, dracænas, and ferns, with some very showy flowers to light them up. Instead of putting soil in the receptacle, we should prefer to put moss or cocoa-nut fibre refuse, and employ *pot plants only*, so as to be secure always of a rich display; but as the "plunging system" is as yet in its infancy, we will not insist upon this point. S. H.

## LILLIPUTIAN ORANGE TREES.

BY GEORGE GORDON.



THE value of *Solanum capsicastrum* and *S. hybridum compactum* is now well known, and their culture has been explained in these pages by some of the best practicals living. There is, however, one phase of their culture which, as a rule, does not have sufficient prominence given to it. I allude to keeping them several years, instead of raising a fresh stock annually. There is not only less difficulty attached to their management, but the old specimens produce a much greater proportion of berries, and are, therefore, more effective. Some of the plants under my charge are five years old, with large well-proportioned heads densely furnished with berries, and, judging from their appearance, we shall be able to keep them as many more five years as may be considered desirable. It is a simple matter to keep them, and especially worthy of the attention of the numbers of amateur horticulturists who have no hotbed in which to raise the seedlings in the spring. They are managed in the ordinary way all the winter, and in the spring, as soon as they present a somewhat faded appearance, the berries are removed, and the branches pruned. It is necessary to prune them back to where the wood is firm, and to aim at preserving a regular contour. After they are pruned, place them in the warmest corner of the greenhouse, and keep the soil rather dry, but syringe them occasionally. New growth will soon begin to push, and when it averages half an inch in length, turn them out of the pots, and, after trimming the roots, put them in pots one or two sizes smaller than those which they previously occupied. In a short time the growth will begin to make rapid progress, but until it does, no more water must be applied than is really necessary to keep the soil just moist, and they must be syringed overhead from three to five times a week, according to the weather.

By the time the plants are well established in the new soil, and the roots require more room, the season will probably be advanced sufficiently to admit of their being planted out in the open ground for the summer. When the time can be spared for growing them in pots all the summer, it is as well to do so, but they succeed exceedingly well planted out, and require but very little attention. The soil in which they are planted should be moderately rich and friable, to promote the formation of fibrous roots. A sheltered and sunny border is the most favourable position for their quarters to insure an early growth, and the maturation of their berries by the time they are required for decorative purposes. It may probably be necessary



to water the border three or four times during the season, and any shoots that grow out of bounds must be checked by having the points nipped out. It is not often, however, that any stopping is necessary.

Early in September lift them carefully, and put them in well-drained pots of a suitable size. During the first few days after they are lifted, keep them in a pit, and shade from the sun. With the assistance of a little shading and a sprinkle overhead occasionally, new roots will soon be formed in the fresh soil, and the whole stock can be removed to the greenhouse.

If they are grown in pots, guard against their suffering from drought, and syringe the foliage frequently to keep down the red spider, which will soon do an immense amount of mischief if not kept in subjection.

For the comfort of those who have no frames or greenhouses, I will add that, by managing them in the manner recommended above, noble specimens may be produced for the winter decoration of the drawing-room. The *Solanums* are most valuable for windows, and should be cultivated more extensively than they are at present for that purpose.

## CHOICE DESSERT APPLES.

BY THOMAS TRUSSLER.



REFORM is needed in the whole subject of apple culture, both to eradicate from fruit gardens all inferior kinds, and substitute for them the best varieties known; and also to multiply apples to such an extent that in the poorest household they may become staple articles of food, as commonplace and as useful as bread. Human nature seems to be constituted on a plan expressly antagonistic to the apple, as if the sins of our first parents were to some extent to be visited upon the fruit which played so conspicuous a part in their ignominious downfall. If it was the shaddock, and not the apple, that Eve was beguiled to taste, the supposition of all antagonism between human nature and apples falls to the ground. But the truth remains, nevertheless, that the most useful of all our hardy fruits receives less scientific care and study than any; apples are so easily grown that nobody cultivates them, and so generally good that nobody cares much about the qualities of varieties, and the possibility of improving our ordinary supplies beyond the present standard. The growers who lay themselves out to supply the market, are always in haste to favour any scheme which shall tend to raise the price of apples. Instead of studying the characters of varieties, and so ordering their planting as to keep the market regularly supplied all the year round, they prefer to neglect the science of the undertaking in order to have time and opportunity for the adoption of measures calculated to keep up the price when apples are a drug in the

market. Hence, though there is no fruit that keeps so well as an apple, and no fruit is in such general request, being needed nearly as much by the peer as by the peasant, nevertheless during the greater part of the year it is only the few that can indulge in the luxury of eating an apple, either raw or cooked; the many must be content to enjoy apples during a brief period of the autumn, when they are so cheap as to be scarcely worth the cost of carrying to market. The remedy for all the evils of faulty apple culture is in the hands of every one possessing a garden. Grow your own apples, and so order your growing as to be sure of plenty at all seasons, and plenty of the best. There need not be a single difficulty in any district of Britain, where horticulture is at all possible, in the cultivation of apples. We must select our sorts according to the soil and the climate of the garden; and there are so many sorts, and so many of them are good, and so many of them have peculiarities of constitution, that every soil and climate may be suited; and those who fail to grow apples are to be considered beyond the reach of good advice—perhaps also beyond the pale of civilization.

Dessert apples should always take precedence of varieties which are useful only in the kitchen, because many of them are well adapted for either purpose; and a dessert apple when cooked is as much superior to a kitchen apple cooked, as it is superior when not cooked for a *bonne bouche*. But it is for eating at the dessert that dessert apples are supposed to be grown. Well, there are finer dessert fruits, but a good dessert apple is acceptable to any palate, and it is certainly the handsomest and most generally useful of all our fruits during winter, and those who never eat apples can appreciate their beauty. Tastes differ; it is well they do. Some like a crisp-fleshed apple; some a sweet, and some a sour apple. I consider one of the first requisites of a dessert apple is tender flesh; for if the teeth can subdue the flesh of a flinty apple, it is an injustice to the stomach to thrust upon that ill-used organ the task of digesting it. For this very reason, *Ribston Pippin* is one of the least desirable for eating, because its flesh is always hard; but *Shepherd's Fame* is one of the best, because the flesh is always tender; and though it has no such piquant and sprightly flavour as the Ribston, it is sweet, balsamic, and grateful to the palate, and is one of the handsomest apples known. *Newtown Pippin*, which comes into use at the same time, is tender-fleshed, and superior to Shepherd's Fame in flavour; it is, in fact, a first-class apple; but Shepherd's Fame is second-class as to quality, but so prolific and certain that no apple-grower should be without it. If the Ribston should be considered a standard for comparisons, the most formidable rival would be *Cox's Orange Pippin*, a most beautiful fruit, with yellow, tender, yet crisp flesh, very juicy and perfumed, which is in perfection at Christmas, and continues good till the middle of March. Another of my favourites is *Reinette du Canada*, a very handsome fruit, which keeps till May and June, and is then in perfection. It is not equal to Cox's Orange or Newtown Pippin, but at its season it would be no easy matter to beat it, and in fact it is a truly aristocratic apple, with a firm yet not hard flesh, and an agreeable flavour. In the spring piles of this apple are

to be seen in the City fruiterers' windows, but not under its proper name. It is generally offered under a Spanish name, at a higher price than it would realize under the name it is best known by; its beauty sells it, but it is so good that the purchasers never complain about the extravagant price. *Boston Russet*, which is rather scarce, takes rank among the finest dessert apples; like Cox's Orange, it has a true Ribston flavour, but unfortunately the flesh is not so tender. The *Claygate Pearmain* is, like all other pearmain, a dry fruit, but in flavour so nearly resembles Ribston as to be fit any time to take its place; and it is, moreover, a tender fruit, an abundant bearer, and one of the best keeping apples known. *Cobham* is of the Ribston class, but the resemblance is rather shadowy.

But instead of discussing likes and dislikes, let us take a practical survey of the varieties of highest value as they come into use successively for the dessert. The earliest apples are not first-rate, but they are useful, and especially so where there are young people always clamouring for fruit. The first apple that ripens is the *Red Juneating*, sometimes known as the *Striped Quarrenden*. This is small, somewhat angular, and rather tapering to the crown, skin greenish-yellow, richly streaked on one side with deep red. When eaten off the tree, it is a very nice apple—rich, juicy, brisk, but without any perfume or spiciness of flavour. A whole batch of varieties may be had to follow this variety, but many of them are worthless. One of the best is *Irish Peach*, a medium-sized apple, with a rich flavour and fine appearance. *Early Julien* ripens at the same time, and is a capital variety for northern districts; it is as good in the extreme north of Scotland as anywhere else in Britain. The fruit is of medium size, pale yellow, the flesh yellowish-white, very juicy, brisk, and more highly-flavoured than any other early apple. There is a very handsome apple called *Borovitski*, which comes in a few days after the last, and is good for six weeks. It is one of the most beautiful apples known, but must have only the second rank for flavour. I should always prefer *Red Astrachan*, which is also most beautiful and excellent if eaten as soon as ripe; if kept beyond its season it becomes mealy. *Red Astrachan* forms a very neat, prolific bush, and when the bush is covered with its large deep crimson fruit, it is a most interesting and attractive object. *Red Quarrenden* is the last that will be recommended in this section of early apples. It is a pretty fruit, rather small, deep crimson, and distinguished from other apples like it by the knotty protuberances that surround the eye. It should be eaten when freshly gathered, though it will keep good till the end of September. If these are not enough of summer apples, you may add *Early Strawberry*, *Early Harvest*, *Early Joe*, the pretty and pleasant *Summer Golden Pippin*, *Sugarloaf Pippin*, and the very excellent *Kerry Pippin*, which is good from the 5th of September to the end of October, and may be kept beyond that time.

For autumn use, there are no better apples than *Pitmaston Pine*, *Mother*, and *Margil*, which ripen together, and are fine in October; *Golden Reinette*, which comes to perfection at the end of October,

and is good till the middle of January; *Golden Winter Pearmain* (also called *King of the Pippins*), which lasts through the same season; *Cox's Orange Pippin*, which lasts from October to February, or later; *Sam Young*, a tender-fleshed small apple, which is good from November to February; and *Stamford Pippin*, which is handsome, rather large, fine tender flesh, with a brisk flavour, and in perfection at Christmas.

As soon as we turn the new year, *Golden Pippin* is at its best, though it may be used if needful all through December. But at the turn of the year they begin to shrivel slightly—so slightly as to be scarcely perceptible, and it is when that slight shrivelling begins that their flavour is richest. All the Golden Pippins are good, and if the flesh of the old Golden Pippin is found to be hard, the *Screveton Golden Pippin* should be grown in place of it; the last, however, is later in ripening than the old Golden, and it lasts out longer, being sometimes good till the 1st of May. *Scarlet Nonpareil*, *Boston Russet* (hard flesh but fine flavour), *Herefordshire Pearmain*, *Cornish Gilliflower*, *Coe's Golden Drop* (a delicious little apple), *Bringewood Pippin* (exceedingly rich), *Court of Wick*, *White Calville*, *Northern Spy*, and *Reinette du Canada*, are varieties of the highest excellence, which succeed each other pretty nearly in the order in which they are here arranged, and all of which are adapted for a great variety of soils and climates, and for bush, pyramid, and espalier culture, which are the proper modes of culture for those who want fine fruit for their own eating. If you have a very good climate, and a warm, loamy, rather dry soil, try *Newtown Pippin*. It is very tender in constitution, and must not be classed in any list intended for general use. But if you can plant a few bushes near a warm wall in a very sheltered nook, you may do well with it. Of course training it to a wall will be the surest way of protecting, but the fruit from a wall is not so good as that from sheltered bushes. Another delicious and tender-fleshed apple is the *Melon*, one of the very best of the Americans. That must be dealt with in the same way as recommended for Newtown Pippin. If the list is not long enough now, add *Spring Ribston*, which is a useful fruit, though inferior to the old Ribston; *Scarlet Crofton*, a medium-sized apple, which is just now in perfection, being slightly shrivelled, though it may be used as early as October, and is then very juicy. This is an apple which never becomes mealy, and is always very sweet and rich in flavour. *Shepherd's Fame* I have perhaps said enough about already; I should have included it in the above list, but it occurred to me that it might cause a demand for something unattainable, for I don't think it can be obtained by any one without considerable trouble; the fact is, the trade never fairly got hold of it, and hence it has never been plentiful, and has very seldom found its way into any catalogue. It is the same with *Scarlet Crofton*; aye, and with perhaps a hundred first-class apples that could be named. However, there are plenty of fine sorts that you may make sure of with no more trouble than simply ordering as many as you want; and therefore the scarcity of some varieties need not interfere at all with more extensive and more profitable operations than at present prevail in the orchard and fruit garden.

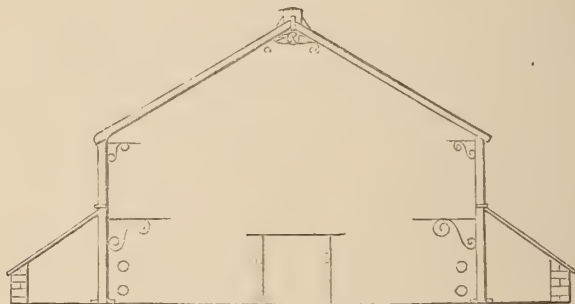


## AMATEURS' ECONOMICAL GREENHOUSE.



REENHOUSES and other plant structures are so frequently built with an utter disregard to the requirements of the plants intended to be grown in them that a few words upon the subject will perhaps be of some service.

One of the commonest errors made in building greenhouses is to have them too lofty; and houses intended for the cultivation of plants not more perhaps than twelve to fifteen inches in height are met with ranging from ten to eighteen feet in height. Again, houses intended for large specimens are frequently built so small as not to afford sufficient head-room. Now, it should first of all be decided what class of plants are to be grown, and then the house should be erected accordingly, so as to afford a sufficiency of head room without being of an excessive height. Where there is only one house, and a mixed collection of plants is grown, comprising specimens ranging from a few inches to several feet in height, it is difficult to suit the requirements of all.




AMATEURS' ECONOMICAL GREENHOUSE.

The style of house portrayed in the accompanying illustration is, probably, the best that could be designed for the accommodation of a mixed collection. The tallest specimens can be placed upon the centre stage, the next size on the side tables, and the smallest stuff in the pits on each side. By this arrangement everything will have ample head room, and at the same time be near the glass; moreover, they will be placed under the conditions most favourable for a frequent examination. If preferred, the walk may be made down the centre, with broad flat stages on each side, to keep out the frost and dry up any superfluous moisture; when necessary the house should be heated with a flow-and-return four-inch pipe on each side, and openings in each wall must be provided to allow the heat to escape into the pits to keep the inmates safe. There is no objection to the pits being heated with a separate system of pipes, from the same boiler of course; but we are here considering the most important point of how to erect the house in the most



economical manner. Two-inch pipes will be large enough for the pits; and one passing down one pit and up the other will be quite sufficient for all ordinary purposes, especially as the lights can be covered with mats in severe weather. The greenhouse floor should be laid with white and black tiles, unless stone can be procured at a cheap rate; but for the floor of the pits a bed of ashes will suffice. The openings in the wall, it is necessary to add, should be provided with shutters, in case the frames should be occupied with hardy plants, that merely require protection from too much moisture; if side-lights are adopted, they should be made to slide, instead of pushing out, and, of course, be made to open from the inside.

## ON THE SELECTION OF GARDEN VEGETABLES.

HE time is fast approaching when seeds must be bought and sown, if it is hoped to obtain from the garden a fair supply of the flowers and vegetables that constitute so large a part of our enjoyment of the summer season. Those who are wise will purchase at once—nay, the wisest have made their purchases already, and have their seeds in hand, to sow them when they will. It may be that neither the weather nor the state of the ground will be favourable for seed sowing for another month at least; but suppose the time comes and you have no seeds to sow, what then? And this is quite likely to happen if you are not quick in obtaining what you want; for your own delay in ordering seeds may be prolonged, and the seedsman may be so overwhelmed with business when he receives your order as to be compelled to neglect it for a week or two, and the end of it may be the loss of a golden hour, in which you might have sown an early pinch of everything. The early bird will catch the worm in this case, and events will prove how prudent it is to “take time by the forelock!”

In looking over a list of seeds, you may perchance be bewildered. It all depends. If you have had some experience, you will be rather amused than bewildered, and you certainly will not be easily caught. You may find in the list a hundred sorts of peas, and two hundred sorts of potatoes, all recommended as possessing some particularly desirable quality. Now you may take my word for it that a dozen sorts of any one class of either flower or vegetable seeds are sufficient for any gardener, whether large or small; and, generally speaking, two or three, or at the utmost six, sorts are enough. In the selections offered our readers, under the head of “Finger Post,” the results of comparisons carried on in our trial grounds during twenty years past are given, the trials having been systematically conducted on a most comprehensive scale, our collections comprising, as a rule, *all* the varieties obtainable, and usually every collection has been grown three years in succession, so as to subject the sorts to the varying conditions of our seasons. We have tried about one hundred and fifty varieties of peas, nearly three hundred varieties of

potatoes, over eighty sorts of lettuces, about thirty sorts of kidney beans, and thirty sorts of tomatoes, etc. etc. By patiently collecting, cultivating, and comparing, we are enabled to sift the grain from the chaff, and determine how many sorts in large collections differ in name only, so that seeds bearing many different names might be taken from the same bag. That these lists are by many considered trustworthy is proved by the frequency with which they are copied by horticultural writers who have enjoyed but few opportunities of obtaining knowledge at first hand. Look, for example, at that pretentious periodical called "The Garden," of December 16, 1871, and you will find a selection of seeds for the kitchen garden, obviously founded on our lists. The very first line, which declares there is "but one sort of asparagus," our readers must be familiar with; and those who are interested in tracing coincidences may be amused with what follows. However, we can afford this sort of thing, having experiences to draw from, to provide information "fresh and fresh," as the boy had his salt.

It is our happy lot, as having no trade interests, and perpetually subjecting everything to trial, to make occasional discoveries of peculiar merits in varieties that are comparatively unknown. But, as a rule, we find that the world is more eclectic than the superficial declare it to be; and hence, generally speaking, *the most popular sorts* in every class of garden plants are *the best*. You may pretty safely grow what "everybody" grows, but you must not be tied, for it takes about seven years to make a good novelty well known, and hence many first-class garden plants "enjoy" obscurity in the first few years of their being submitted to the ordeal of public opinion. But the golden rule for the private gardener who cares nothing for names and novelties, but everything for merit, is to avoid novelties as a rule, and to purchase and plant only such things as he may have sound reason for believing to be good. And of equal importance is it to stick to *old names*, so long as they are known to represent good sorts, for many of the best and most famous things are brought out every year under new names, at a price beyond their market value, the purchaser being required to pay the seedsman for having invented a new name for a thing well known under an old name. It would not be an easy matter to discover how many names that fine old pea the British Queen has had in seedsmen's catalogues; and of Early Frame, Ringwood Marrow, and Paradise Marrow, the names are almost beyond counting. But you may be sure of this, that a variety having many names is good, and therefore a long list of synonymes is the best possible guarantee of excellence. Let us glance for an instant at a potato list, and we shall find that the old Ashleaf, the Lapstone, the Fluke, the Regent, and the Shaw, have been re-named almost *ad infinitum*; like the White Dutch currant, which has twenty names at least, and is always White Dutch, from first to last.

There is a grave error to be guarded against by those who desire to obtain from their gardens an abundance of good produce, and that is the notion that things of giant size are necessarily good. In a majority of cases great size and coarseness go together, and the

"big things" are often utterly worthless. A potato as big as a man's head is not to be desired, nor is a vegetable marrow the size of a drum. One of the most obnoxious of all large vegetables is, large celery. It may be good indeed by some rare chance, but is more likely to be hollow, stingy, watery, and flavourless. Large cabbages are often foxy, but small cabbages that are green all through are always delicate and wholesome. What is the use of a cucumber thirty inches long, and as tough as an old hat, and perhaps bitter and poisonous? Better half a dozen tender fruits nine inches long, which can be cut and eaten as required, than to go without cucumbers until a monster can be grown, and then have no better enjoyment than to speculate on its suitability to serve as a drain-pipe, if bored through and made waterproof. What is the use of a broccoli or cauliflower as large as aloo table, and as coarse as a cattle cabbage, when the space of ground such a wretched thing must cover would produce a dozen neat little delicate heads white as a curd and as rich as butter? Be not deluded by vegetable monsters that are better adapted for the pig-trough than the dinner-table; and bear in mind that, as a rule, the vegetables of finest quality are scarcely less productive as to dead weight of crop on a given area of ground than the "mammoth" kinds, and in many cases equal or even surpass them as regards the return they make for the labour bestowed upon them. Always vote for quality, and you will not often have to grieve that your ground has paid you badly; but bear in mind also that in every class of vegetables there are to be found prolific sorts of second-rate quality that are worth growing, because of the liberal return they make of wholesome food, which, though not of the very first quality, is yet acceptable, and their slight defects of quality are made amends for by their immense fruitfulness. In Early Rose potato; in Dickson's Early Favourite pea; in Johnson's Longpod bean; in Berlin Summer cabbage lettuce; in Purple-sprouting broccoli, and Common Green vegetable marrow, we have examples of second-rate things that are too good to be discarded, seeing that they make large returns by their productiveness. On the other hand, Ringwood Marrow pea, Rilott's Flower-ball potato, Bath Cos lettuce, the old Green Windsor broad-bean, and Hibberd's Prolific marrow, are not surpassed for quality, and in productiveness are equal to the coarsest kinds in their several classes. During the past fifteen years, garden vegetables have been wonderfully improved, and it needs but prudence in selecting to insure the finest products the earth in this climate can produce, and in such quantity, too, that there is but an occasional excuse for tolerating anything of secondary merits. Those who will follow our "Finger Post" as far as it leads them will do well; and they may add to our lists many good things, as their taste and fancies may dictate, for there is ample range of choice in the trade collections: but the additions must be made with caution, or they are only likely to prove equivalent to subtractions in the end.

S. H.

## NEW VEGETABLES.

BY GEORGE GORDON.



It is very satisfactory to be able to put on record the fact that the majority of the new vegetables offered for sale during the last two years have proved to be both distinct and good. In this we have much cause for congratulation, because until quite recently a very large number of the so-called new vegetables sent out every year were in reality not new at all, but old kinds with new names, and the few that were distinct were inferior to others of the same class. To the list of peas, which now form such an important crop in the gardens of all classes, we have had several very important additions. In the earliest section of round-seeded peas, mention must be made of *Easte's Kentish Invicta*, a blue pea, very productive, and of good flavour. In the corresponding section of wrinkled marrows, there are three deserving of notice. The first is *Laxton's Alpha*, the earliest and most productive of its class; the pods are long and well filled, and produced in great abundance, and the flavour is exceptionally good. The usual height is three feet. Nutting's *Multum in Parvo* is an improved little gem, being quite as early, but more productive, and with finer pods. Strictly speaking, this is not a "new" pea. *Early Emerald* is another very early and very dwarf wrinkled marrow, which can be strongly recommended. The last two mentioned are so dwarf in growth, as not to require any sticks, but they are by no means profitable. In the second early and main crop sections, *Laxton's Quality*, and *Quantity*, and *Maclean's Best of All*, all of which were distributed for the first time in the spring of last year, are first-rate. They are all marrows, very productive, and as they are of moderate height, can be grown in small gardens and where pea-sticks are scarce. *Laxton's Supreme* and *Hundredfold*, two peas which have been before the public two or three years, can also be recommended. The former is rather tall, and ranging from five to eight feet, according to the character of the soil in which it is grown, and very handsome, but not quite so sweet in flavour as a few others. The latter is not quite so tall, produces very thin, handsome pods most abundantly, and is altogether a good pea. Several new peas are offered this season, but I must defer all notice of them until they have been submitted to a careful and comprehensive trial.

Several new French Beans have been introduced from various quarters, but with the exception of *Carter's Champion Scarlet Runners*, none have proved of any great value. This variety of the well known Scarlet Runners, produces very large fleshy pods, is very prolific, and should take the place of the common form, which it surpasses in every way.

Only one new Broccoli has been introduced, and that, *Cooling's Matchless*, is in every way first-rate for spring use. The *Early Rainham* Cabbage is remarkable for its earliness, and the short



space of time in which it is ready to send to table. *Veitch's Autumn Giant Cauliflower* has more than justified the high character it received when first introduced to the readers of these pages. It is a most valuable vegetable, and well worth the attention of all who grow cauliflowers for autumn use. It is capable of withstanding the effects of hot and dry weather better than any other variety, and from seed sown in March and April, a liberal supply will be secured throughout the autumn, and far into the winter, by protecting them in severe weather. With good cultivation, heads thirty inches in circumference will be obtained; but grown without any extra attention, they will not be quite so large, and they may be cut when from four to six inches in diameter, whilst perfectly solid and of the purest white. The *New Erfurt Dwarf Monmouth* is a very fine summer cauliflower, and is known as Frogmore Forcing, and under several other names.

The new *Turnip-shaped Egyptian Beet* has proved useful for shallow soils, but it cannot be recommended for deep rich soils, because of its tendency to become coarse. When over-fed, in flavour it is hardly so good as the best beets at present in cultivation.

Onions have received a considerable share of attention of late, and two very gigantic varieties have been introduced into cultivation, namely, *Giant Madeira Globe*, and the *Giant Rocca of Naples*, both of which can be grown to a weight of several pounds, especially if sown in the autumn. The *Bedfordshire Champion* is a fine type of the White Globe, and the *Improved Reading* a fine type of the White Spanish. Both are therefore good, and should be grown in preference to the ordinary forms of these varieties.

Of the new Cucumbers, *Heatherside Rival* has proved to be a most valuable acquisition; the fruit is of fine form, and rather large in size, and produced in wonderful profusion; it may be safely put down as one of the most useful cucumbers in cultivation. *Blue Gown* has proved itself to be as valuable for home consumption as it is for the exhibition table. It is certainly one of the most productive varieties we have, and the fruit which, with ordinary cultivation, averages eighteen inches in length, whilst not exceeding an inch and a half in diameter, is of the finest possible shape; the fruit is also remarkable for its fine full flavour and solidity; in the latter respect it is unsurpassed. *Cox's Volunteer*, another of the new varieties, is also very handsome, productive, and fine flavoured. The chief characteristics of the *Sooley Qua* Cucumber, the finest of which can be grown to the length of five or six feet, are ugliness and coarseness. It has not been recommended for use in the same way as the other cucumbers; but whilst we have such a delicious vegetable marrow as Hibberd's Prolific, which in common with the other sorts can be grown in the open, it is little short of being a waste of frame or house room to grow cucumbers for stewing.

Several new varieties of Celery have made their way into cultivation, and some are extremely good. *Wright's New Grove Red*, and *New Grove White*, are both first-class, being of medium size, very solid, crisp, and delicate in flavour. *Williams's Matchless Red*

and *White* are also both good indeed, no better celery need be desired.

Tomatoes are now beginning to receive the attention they deserve, and several new varieties have been introduced. The *Trophy* produces very large, solid, and handsome fruit; but it is very robust in growth, hardly prolific, and the fruit is late in attaining maturity. It is, however, first rate for late exhibitions, and can be recommended for warm soils and situations; it also deserves attention for sauce-making, because of the small quantity of watery pulp the fruit contains. *Hepper's Goliath* is an improved form of the old common Red, and therefore most valuable. The best of the new tomatoes, however, is *Earley's Defiance*; for productiveness and general good qualities it is unsurpassed; the fruit is very smooth, even, and solid, and borne in huge clusters at every joint. Unlike other kinds the shoots do not require to be pinched back, because when allowed to grow unchecked they produce clusters of fruit throughout their entire length. As a proof of its productiveness, the raiser last autumn gathered at one time forty-two pounds of full-sized ripe fruit from two plants grown in one nine-inch pot. For the truth of this I am able to vouch, because I was present when the fruit was gathered and weighed; the two plants were only fair samples of others grown in the same way, and it is possible that others were more heavily laden.

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THE HANGING GARDENS OF BABYLON.—These have always been a mystery to all unacquainted with classical literature. It is generally supposed that these hanging gardens were either large floating islands, full of verdure and bloom, or else some specimens of elevated gardening on the top of public buildings in some special quarter of the great city. The real facts are these:—The great Babylonian king, Nebuchadnezzar, among other works to signalize his reign and promote peace, made hanging gardens. This work was undertaken to gratify his wife, Amyitis, a Median princess. Having passed her younger days in a mountainous region, she disliked the uniform level of the country about Babylon, and pined for the woods and hills of Media. The lofty rocks and various trees of this wonderful paradise were an attempt to imitate Median scenery. These gardens were high enough to overlook the walls of the city, and occupied a square 400 feet on a side. It has been a question how these gardens were supported at this great height, as it was, until lately, taken for granted that the Babylonians did not understand the principle of the arch. But it is now known that very perfect arches were built in Egypt, in Assyria, and in Babylonia centuries before Nebuchadnezzar's time, and so the question is simplified. The ancient Romans, when they had to carry a stone aqueduct across a deep ravine, sometimes built three or four tiers of arches, one above another, till the required level to which the water was to be carried was reached. In the same manner, only on a larger scale, were the hanging gardens raised. They built one storey of arches, covering the required space; on this was placed a second storey; and thus was storey after storey raised. A great mass of earth covered the top, and water was supplied from the Euphrates through pipes. Not only flowers and shrubs grew there, but trees of the largest size; some of them so large that their trunks, according to Quintus Curtius, were 12 feet (?) in diameter. The ascent to the gardens was by steps, and on the way up, among the arches, were stately apartments, whose pleasant coolness the heat of the climate could little affect.—*American Horticulturist*.

## THE GARDEN GUIDE FOR JANUARY.

**CONSERVATORY AND STOVE.**—Flowering shrubs that are to be bloomed early should be taken to the greenhouse first, and then to the stove, and have careful attention as to watering and ventilation. If forced too quick, they may throw off their buds, and be injured in constitution also. *Kalmias*, azaleas, camellias, rhododendrons, lilacs, daphnes, roses, double-flowering peaches, and *Andromeda floribunda*, are the best for the purpose. *Jasminum nudiflorum*, fuchsias, cinerarias, primulas, and *Cytisus*es coming into bloom must be watched for greenfly. Keep succulents quite dry. *Poinsettia pulcherrima* and *Euphorbia jacquiniiflora* may be flowered in the stove. Put *achimenes* and *gloxinias* in heat for early blooming. Greenhouse, 40° to 45° night, 50° to 55° day. Stove, 55° to 60° night; 65° day.

**FLOWER GARDEN AND PLEASURE GROUND.**—Hyacinths and tulips never flower so well as when protected from severe frosts; but otherwise they should have as much air and exposure as possible. Get ready the beds intended for *ranunculuses* and *anemones* to be planted next month. Turn over the compost heaps, to let the frost through them, to destroy vermin, and pulverize the stuff. Chop down heaps of turfs, to accelerate the rotting of it, under the action of frost and snow. Plant roses, but beware in digging in any frozen manure. After planting, lay on a good layer of dung for a mulch. Give *auriculas*, *carinations*, and *pansies* plenty of air, but be very cautious in watering. Give them only as much as will suffice to keep from flagging, and none at all during hard frost.

*The Anemone.*—It is not our intention to speak of the species held in high repute by the botanists, such as *A. Apennina* and *A. Japonica*, but to give a few general directions for the cultivation of those grown by the florists. To grow *anemones* of this class to perfection, they must be planted in beds of deep, rich loamy soil early in February. But if the subsoil is very dry, and the situation exceptionally favourable, they may be planted early in November. In either case the beds should be prepared a month previous to planting, and the surface left very rough, to ensure the thorough aëration of the soil. Plant in rows a foot apart and two inches deep, and take the roots up in May or June, according to the earliness or lateness of the locality, and store in bags or boxes.

*The Ranunculus.*—These beautiful flowers require much the same treatment as the *anemones*; the soil should be rather more retentive, for one of the chief essentials to secure fine flowers is to plant in deep, firm, and well-holding loam. The tubers should be planted the first week in February, if the state of the ground is such as to admit of its being done. Plant in drills two inches deep, and six inches apart, and put them about five inches apart in the drills. Water liberally in dry weather, when they are in full growth, and take up the tubers as soon as the leaves have turned brown. Lay them out in a room for a short time to dry, and store in bags or boxes.

**FRUIT GARDEN.**—In planting fruit-trees, be careful not to dig in about their roots any frozen or wet, pasty soil, for it is impossible for the roots to strike into it. Dress fruit-walls and old trees with a mixture of lime, soot, and clay. Old apple-trees may now be benefited by a good scrubbing with a dandy-brush dipped into strong brine. Tender trees in exposed situations should be unnailed to keep them back.

**KITCHEN GARDEN.**—Dig, trench, and manure at every opportunity; take advantage of frosts for heavy wheeling. Get drains made, and complete, as weather permits, any earth-work that may be in hand. Put a heap of half-rotten dung over every stool of rhubarb, and put large flower-pots over a few of them, and cover with horse-dung, to obtain a supply of early shoots. To force seakale, asparagus, and rhubarb, make up a hotbed in a pit or frame, and over the dung spread four inches of soil; then take up strong roots, and put them in pretty close together, and cover with leaves. Asparagus should never be thoroughly blanched, but allowed to green at the points, and it should be cut before it attains to the length in which it usually comes to market. Strong stools of rhubarb may be put into large pots, and packed round with litter or leaf-mould, and put under the stage of a greenhouse for an early supply. It is altogether a mistake to blanch rhubarb, and under the stage it will get light enough to grow a good colour. Protect celery with loose litter, and keep it well earthed up. Look over the stock of cauliflowers, lettuces, etc., in frames, to see that they are not suffering from damp or too close confinement. Stir the earth among the plants; dust with lime occasionally. Keep a sharp look-out for slugs and woodlice, which harbour next the woodwork. Make up a hotbed for cucumbers and melons, and sow in pots; and, when forward enough, make up the beds in which they are to be planted, and turn them out when the heat is steady.

Sow in heat early horn-carrot, cauliflower, lettuce, capsicum, tomatoes, and celery for summer use. On warm borders, or in frames, peas and beans, two-bladed onions, cabbage, short-top radish. The safest way to sow peas is on turfs cut in lengths, to be lifted afterwards to the open ground. Plant Jerusalem artichokes, horseradish, and shalots.

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**HOW TO HEAT A SMALL CONSERVATORY FREE OF COST.**—In a communication to the "Builder," a correspondent thus writes: "A few years ago a friend of mine bought a house, one of a row; it contained two sitting-rooms on the ground-floor, one to the front, the other to the back. In summer the back room was unfit for habitation owing to the heat caused by a close range in the wall which separated it from the kitchen of the adjoining house. This suggested to me an idea which has been carried out successfully. In planning a new villa, I placed the kitchen fireplace in the west gable; the space behind the range was left open, and against this was built a conservatory, 14 feet by 8 feet. The open space behind the range is furnished with a wooden door, over which, in the thickness of the wall, is formed an air-flue, having a damper. By shutting the door and opening the damper, the heat from the range is carried off, and *vice versa*. This contrivance may not suit those who wish to maintain a high state of temperature in the conservatory during the winter, but a heat sufficient to protect plants from frost, and to cause some varieties to flower during that season, can be maintained free of cost."



## NEW PLANTS.



**DENDROBIUM BARBATULUM** (*Bot. Mag.*, 5918).—This pretty dendrobe differs from *D. chlorops* “by its larger pure white flowers, with more elliptic acuminate sepals and much narrower petals, and from *D. Fitcheanum* by the sepals being orbicular, by the totally different lip and the colourless column, as also by the swollen base of the stems.”

**ERANTHEMUM CINNABARINUM**, VAR. **OCELLATUM** (*Bot. Mag.*, 5921).—A handsome Burmese orchid, with leaves richly spotted pink and white, and flowers of a fine deep cinnabar colour.

**CYPRIPEDIUM NIVEUM** (*Bot. Mag.*, 5922).—An excellent figure of this singular and beautiful orchid plant.

**SEDUM GLANDULOSUM** (*Bot. Mag.*, 5924).—An extremely neat and pleasing hardy rock plant, producing compact heads of delicate pink flowers.

**LITHOSPERMUM GASTONI** (*Bot. Mag.*, 5926).—A rare European plant, allied to the borage. The leaves are in spreading tufts, the flowers in dense clusters of a fine violet-blue colour.

**PRIMULA VERTICILLATA**, VAR. **SIMENSIS** (*F. M.*, 535).—A handsome greenhouse plant, known as the “Abyssinian Primrose.” The leaves form primula-like tufts, and the flowers rise in a noble candelabrum-like thyrsus of a fine deep yellow colour.

**CERASUS PENDULA ROSEA** (*F. M.*, 536).—An extremely elegant shrub, bearing pendent racemes of pale pink flowers.

**PRIMULA JAPONICA** (*F. M.*, 537).—A striking figure, and the best figure published, of one of the best plants of the year. Mr. Dombrain says of it: “Respecting the discovery of this superb plant, I have been favoured with the following note from Mr. Fortune. It is dated April 26, 1871, and states that ‘it was met with by me, in full flower, in gardens near Yedo, in May, 1861. I saved its seeds at the time, and sent them home to England, but they failed to vegetate. Plants also were lost on the voyage. Since that time I have made many efforts to introduce it into England, but only last year succeeded in getting seeds to vegetate. For these seeds I am indebted to W. Keswick, Esq., of Hong Kong, and Messrs. Walsh, Hall, and Co., of Yokohama, which gentlemen have thus the honour of introducing a very lovely plant into English gardens. It is perfectly hardy in England, and is now, April 26, in full bloom at Mr. Bull’s establishment at Chelsea. There are several varieties, all beautiful, and no doubt we soon shall have many more.’” The only previous notice of this plant I can find is A. Gray’s description, quoted above, and which was drawn up from specimens collected near Hakodadi, by Charles Wright, who discovered it in 1855, and which was published in 1859. As a species it is very closely allied to *P. prolifera*, of the Khasia mountains, in East Bengal, discovered by Wallich’s collectors, previous to 1830, and which we have collected, but not in flower, inhabiting marshy spots at an elevation of 5000 feet on that range. It is also most closely allied to the yellow-flowered *P. imperialis*, Junghuhn (*Fankrienia chrysantha* de Vriese), of the mountains of Java (4—9000 feet elevation), and possibly all may prove varieties of one species. *P. japonica* has been collected also by Maximovicz, at Yokohama, and by Consul C. P. Hodgson, near Hakodadi. The splendid specimen here figured flowered in Mr. Bull’s establishment, at Chelsea, in April of the present year; it bears far more flowers than the indigenous one.”

**TYDÆA, DISPLAY** (*F. M.*, 540).—A brilliant variety, with heavily-pencilled deep crimson flowers.

**LEE’S FORCING PINK, COCCINEA** (*F. M.*, 541).—A showy flower of a fine crimson colour. Mr. Dombrain says of it: “Of late years we have received, especially from the Continent, a number of what are now called tree or perpetual-flowering carnations and picotees, which are exceedingly useful for winter blooming, their fragrance making them particularly welcome. English raisers have added several good ones to our list, amongst which must be enumerated *Prince of Orange* and *Ascot Yellow*. There is one objection to these plants, which makes them less desirable for amateurs with small houses—viz., their height, growing, as they do, to three and four feet. There have been also some forcing pinks known for some time, which have been very useful for spring flowering. Amongst them *Anne Boleyn* has long held a foremost place, being dwarf in habit and very free-flowering; but

for usefulness and beauty it is far surpassed by the variety we now figure, which has been brought forward by Mr. Lee, of Cross Bush, near Arundel, Sussex, and was exhibited by him at one of the floral meetings of the Royal Horticultural Society, where it was greatly admired, and received a first-class certificate. It has passed into the hands of Mr. Charles Turner, of the Royal Nursery, Slough, by whom it will be, we believe, distributed in the spring. It is only about nine inches high, and so very free-flowering that there is very great difficulty in obtaining stock in sufficient quantities. This will, doubtless, add greatly to its merits as a decorative plant. It has no claim to any merit as a *florist's* flower, but simply as a most useful early-flowering pink."

AZALEA, FANNY IVORY (*F. M.*, 542).—A grand variety, with well-formed flowers of the largest size; the colour intense deep red, with blackish crimson spots.

ROSE, MARQUISE DE CASTELLANE (*F. M.*, 544).—A fine flower of globular form, the colour rosy crimson.

AMARYLLIS CHELSONI (*F. M.*, 545).—An admirable representation of this splendid amaryllis. The broad-petalled flowers are of a brilliant fiery crimson colour; quite distinct and noble, even amongst the most distinct and noble of its class.

PELARGONIUMS, ROSICRUCIAN AND KINGCRAFT (*F. M.*, 547).—Mr. Dombrain says: "It augurs some zeal and interest in the culture of the pelargonium to year by year either produce or bring into notice new and excellent varieties, when they meet with no encouragement amongst the lovers of flowers generally, and we fear, as a matter of commerce, do not pay. Yet Mr. Turner, of Slough, persistently, year after year, takes up his wonted position, and, although the advance seems slight, yet we are persuaded that it is made. We know that the demand for them, especially as new varieties, is not at all equal to that for the zonal class; but Mr. T. does not wish to give them up, and hopes to see the day when they may yet be cultivated with the same zest as before. From a number of new varieties we have selected the two in our plate as distinct varieties. In *Rosicrucian* the lower petals are of a deep pink colour, while the upper are somewhat deeper, or bright crimson. *Kingcraft* is of the admired dark variety, having the upper petals nearly black, while the lower are a rich deep scarlet, with a tinge of crimson."

BURLINGTONIA CANDIDA (*F. M.*, 548).—A well-known lovely orchid, with large white flowers delicately marked on the labellum with orange stripes.

DIEFFENBACHIA BOWMANI (*Veitch's Catalogue of New Plants*, 1871).—A remarkably fine stove plant, and one of the best of its class for purposes of exhibition. Messrs. Veitch say: "This fine plant was discovered by the late Mr. Bowman during his trip to South Brazil, and was described by him as being 'as far superior to all Dieffenbachias as *Maranta Veitchii* is to all the Marantas. The leaves, which attain an immense size, are of a pleasing light green colour, spotted with dark green, or rather black-green spots, thus giving the plant a very distinct and striking appearance; they attain a length of from two to two and a-half feet, and an average width of one foot, thus proving it to be a most useful exhibition or decorative plant. It has received first-class certificates, both from the Royal Horticultural and the Royal Botanic Societies. It has given us satisfaction to be able to associate with this fine introduction the name of its discoverer, who unfortunately lost his life whilst carrying out his researches in South America."

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WINTERING ONIONS.—A few years ago we met a Western farmer who was growing 2000 or 3000 bushels of onions yearly. They were sent chiefly to the Southern market. He wintered the onions in pits as we do potatoes. A moderate freezing, it is well known, does not injure the onion, provided the frost is drawn gradually, and it is not allowed to freeze and thaw more than once. The best conditions for keeping them are a dry place and temperature just above the freezing point. We have covered with dirt only, using no straw, to the depth of 12 or 18 inches, according to the exposure of the pit, and the onions came out crisp and sound in the spring. The danger to be avoided is heating. It should be remembered that some frost is safer than too much heat. If too much covering is used, the entire pit will rot.—*Toronto Globe*

## HORTICULTURAL AFFAIRS.

ROYAL HORTICULTURAL SOCIETY, *December 6th.*—At the meeting of the Floral Committee, in December, prizes were offered for twenty-four cut blooms of Japanese and other large-flowered Chrysanthemums, Hardy Evergreens, and Hardy Berry-bearing plants, exclusive of hollies. Messrs. Standish and Co., Ascot, were the only exhibitors of Hardy Evergreens, but in both classes they put up fine collections. Amongst the berry-bearing plants occurred examples of the showy *Skimmia japonica*, *Aucubas*, *Pernettya pilosa*, an interesting plant with black berries; and *P. mucronata*, a compact-growing plant with red berries. The hardy evergreens comprised well-developed specimens of *Retinospora pisifera stricta*, *R. lycopodioides*, *R. obtusa stricta*, *R. obtusa*, *Cupressus Lawsonianus fragrans*, a very dense-growing and handsome variety, of a bluish-green hue; *Taxus coriacea*, *T. adpressa stricta*, and *T. fastigiata aurea*, a magnificent golden variety of the Irish yew, with foliage of a deep golden hue, which is retained in full brilliancy throughout the year.

The prizes for Chrysanthemums were awarded to Mr. Rowe, gardener to Mrs. Lewis, The Rookery, Roehampton; Mr. Douglas, gardener to F. Whitbourne, Esq., Loxford Hall, Ilford; and Mr. Goddard, gardener to H. Little, Esq., Cambridge Park, Twickenham, in the order in which the names are here placed. The principal varieties in Mr. Rowe's stand were John Salter, Lady Hardinge, Mrs. Haliburton, Princess of Wales, Venus, Nil Desperandum, Mr. Brunlees, Miss Mary Morgan, Yellow Perfection, Princess Beatrice, Mr. Gladstone, Jardin des Plantes, Lady Slade, Abbé Passaglia, Isabella Bott, Red Dragon, and Dr. Masters. Mr. Rowe also exhibited a white-flowered sport from Venus, which will no doubt become one of the most popular of the large-flowered white varieties for exhibition purposes.

New Plants were very scarce. Mr. Clark, Twickenham, exhibited a neat group of Cyclamens, said to be the produce of seed sown in January; and Mr. Goddard, gardener to H. Little, Esq., staged a group of exceedingly fine varieties, and one named *Queen of Crimson* was most deservedly awarded a First-class Certificate. The flowers are of a very deep rich crimson, stout and massive, of the finest form, and borne on stout well-proportioned flower-stalks.

Perpetual-flowering Carnations were exhibited by Mr. Lee, florist, Arundel, and Mr. R. Keen, gardener to J. E. Shepard, Campsey Ash, Wickham Market. The former had, amongst other promising varieties, *Mars*, a very bright reddish scarlet flower, of good form and very double: it was also said to be free-flowering and neat in growth. The latter exhibited Miss Jolliffe, a dwarf-growing variety, with large well-formed flowers of a warm peach hue, which has already been certificated; and Monsieur Baldwin, a magnificent variety, with large flowers of the finest form, and of a deep rich crimson hue.

Mr. Green, gardener to W. W. Saunders, Esq., Hillfield, Reigate, sent *Argyrophyllum Douglassi*, a beautiful dwarf-growing species, with gracefully-recurred foliage, of a shining silvery hue; Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, a double-flowered variety of *Lycaste Skinneri*, and a charming group of the beautiful Hybrid Solanums: and Messrs. Downie, Laird, and Laing, Stanstead Park Nursery, Forest Hill, representatives of a fine strain of *Primula sinensis*, with white flowers, and red leaf and flower stalks.

The exhibitor of a collection of vegetables in competition for the prizes offered by Messrs. J. Carter and Co., was Mr. Pragnall, Castle Gardens, Sherborne, who staged one of the finest collections ever seen at this season of the year.

Messrs. Iane and Son, Great Berkhamstead Nurseries, exhibited a magnificent collection of Grapes, consisting of fine examples of Trebbiano, Black Hamburgh, Frankenthal, Kempsey Alicante, Lady Downe's, Muscat of Alexandria, Muscat Hamburgh, Duchess of Buccleuch, and Black Prince. A group of new Grapes was exhibited by Mr. Paul, including the white variety of Waltham Cross, which received a first-class certificate twelve months since.

Messrs. Veitch and Sons, Chelsea, contributed a group of standard specimens of *Capsicum Yellow Gem*, a very fine yellow-fruited variety of the highest value for table and conservatory decoration during the winter. The heads of the plants were of medium size and literally loaded with fine large fruit. Mr. Ford, gardener, Leonardslee, sent good examples of Veitch's Red Globe Turnip, to show its usefulness for winter use. From Messrs Stuart and Mein, Kelso, N.B., came samples of

their Extra Curled Kale, which is undoubtedly the very finest type of dwarf Scotch Kale, either for garnishing purposes or sending to table cooked. The leaves are so beautifully curled as to quite surpass the finest parsley, and it cannot be too highly recommended. A First-class Certificate was conferred upon a new white winter Radish introduced by Mr. W. Robinson from California. The roots attain a large size, are very sweet and crisp, and valuable for salads at this season of the year. The roots exhibited were grown in the Society's garden at Chiswick. Messrs. Sutton and Sons, Reading, exhibited a new Garlic, under the name of New Orange Naples Garlic. The bulbs are very large and solid, of a light orange colour, and enclosed in a loose skin. It is perfectly distinct from the garlic in cultivation, and has the appearance of being a most valuable and profitable kind.

**GLASGOW INTERNATIONAL FRUIT SHOW.**—At a meeting of the promoters of this show, the Lord Provost in the chair, it was resolved that a sum of £1000 should be collected, in order to meet the necessary expenses, and that a liberal schedule of prizes should at once be issued. The question as to the place for holding the show was then considered, and a sub-committee appointed to decide as to the most suitable locality for the purpose. The settling of the number of days during which the exhibition should be kept open was also referred to a sub-committee. Another committee was nominated to prepare the schedule of prizes, and draw up the necessary rules and regulations. Mr. F. G. Dougall and Mr. Hogan act as secretary and treasurer respectively.

**MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.**—The following circular has been issued, and needs no explanation:—"Botanical Gardens, Old Trafford, 28th November, 1871.—It has been thought desirable to hold monthly Floral and Horticultural meetings in connection with the above society, similar to those held fortnightly at South Kensington. The meetings to be held in a suitable room in the city. The subjects exhibited will be submitted to a competent committee. First-class and second-class certificates and commendations will be awarded, at the discretion of the majority of the members present, to the novelties exhibited, according to their merit. The council feel that they would not be justified in announcing a series of meetings unless they had promises of support from cultivators; therefore I shall feel obliged if you will kindly let me know whether you will occasionally send plants from your collection; cut specimens will be admissible. The success of the meetings will, of course, mainly depend upon the exhibitors, and the council earnestly invite their co-operation in carrying out this proposition, which they think will be the means of advancing horticulture, and affording pleasure to a large number of ladies and gentlemen interested in plants and flowers.—Yours faithfully, BRUCE FINDLAY."

**VARIEGATED CINERARIA.**—The "Gardener's Record, in its report of a recent meeting of the Dublin Horticultural Club, states that "Mr. Moore showed the meeting a new, beautiful, and unique Variegated Cineraria, of his own raising, which elicited from the members present the most unqualified remarks of approval, and was pronounced by them to be a very decided and most useful addition to this class of plants. About one-third of the centre of each leaf is composed of a mixture of light and dark green colour, whilst the remaining two-thirds of the outer margin is white, of a light purple shade. The colour of the flower is bright lake, forming a nice contrast to the rich foliage." As a plant for house or dinner-table decoration it was thought to be a most desirable and useful acquisition. The under-surface of the foliage had a very pleasing effect by gas-light."

**THE TASTE FOR FLOWERS IN AMERICA.**—Referring to the increase in the taste for flowers which has taken place in America during the past twenty years, Mr. Peter Henderson states in the columns of that excellent Transatlantic monthly, the "American Agriculturist," that statistical investigation taken in the rough, extending in a radius of ten miles from the centre of New York Island, proved that the number of florists' establishments was above 500, and the capital used in stock and structures upwards of 6,000,000 dollars. It is certain that the value is not overestimated, as there are at least half a dozen establishments where the capital used in stock and buildings must be nearly 100,000 dollars each; and, this, too, in New York and its suburbs, where the taste is lower than it is either in Boston or Philadelphia.

**NOTES ON THE YORK AND LANCASTER ROSE (ROSA VERSICOLOR).**—Mr. William Gorrie made the following communication to the Edinburgh Botanical Society with reference to this rose:—"Parkinson, in his 'Garden of Pleasant Flowers' (1656),



thus describes *Rosa versicolor* :—This rose, in the form and order of its growing, is nearest to the Damask Rose, both for stem, branch, leaf, and flower, the difference consisting in this, that the flower hath the one-half of it sometimes of a pale whitish colour, and the other half of a paler damaske colour than the ordinary ; this happeneth so many times, and sometimes also the flower hath divers stripes and marks in it, as one leaf white or striped with white, and the other half blush or striped with blush ; sometimes, also, all striped or spotted over, and other times little or no stripes or marks at all, as Nature listeth to play with varieties in this as in other flowers.' The same author states that the Damask Rose 'is of the most excellent, sweet, pleasant scent, far surpassing all other roses or flowers, being neither heady nor too strong, nor stuffing or unpleasant sweet, as many other flowers.' The specimen of shoot with leaves shows this to be a variety of the *Rosa damascena* of Miller, and as its flowers agree with the description, there can be no doubt but that it is the true York and Lancaster Rose, which name is now generally applied to the *Gloria Mundi* Rose of the florists, which is of comparatively recent introduction, and a variety of the *Rosa gallica*, or French Rose."

**FRUITERERS' COMPANY.**—From the "City of London Directory" we learn the following particulars respecting this Company:—**Charters.**—James I., upon a petition being presented to him, granted this Company letters patent of incorporation, January 9th, 1606, in the third year of his reign. Re-incorporated by 2nd James II. June 19th, 1686, but this was in the next reign annulled. Bye-laws for their guidance were allowed by the Lord Keeper and Chief Justices, April 7th, 1759. **Arms.**—Azure : on a mount in base vert, the tree of Paradise environed with the serpent between Adam and Eve, all proper. **Motto :** "Arbor vitæ Christus, Fructus per Fidem Gustamus." **Fees Payable:**—Upon taking up the freedom, by patrimony or servitude, £4 10s. ; by purchase, £7 7s. Upon admission to the livery, £20. Upon election to the Court, £1 11s. **Charities :**—Mr. Bedford left £5, the interest to be distributed to the poor of the Company. James Frankland gave by will, the 30th November, 1826, £100 in trust, the interest to be given to the poor of the Company on the 25th of January in each year.

**HEALTH OF BOTANISTS.**—According to the *Athenæum*, the Botanical Society of Edinburgh numbers upwards of 600 members, honorary, foreign, corresponding, extraordinary, associate, resident, and non-resident, of nearly every civilized nationality, and scattered over nearly every part of the world. Yet it may perhaps be held as a curious proof of the healthy character of the naturalist's pursuits that, at the last anniversary meeting, the president announced that he had not a single death to record among all these members for the last twelve months.

**TREES IN VICTORIA.**—Recent explorations show that the great Australian trees exceed in height, though not in circumference, the giants of California, though some of the Australians must be regarded as very respectable in girth as well as height, the hollow trunk of one of them being large enough to admit three horsemen to enter and turn without dismounting, while they led a fourth horse. A fallen tree in the recesses of Dandenong, Victoria, was measured not long since, and found to be 420 feet long ; another, on the Black Spur, ten miles from Healesville, measured 480 feet. The highest trees on the Sierra Nevada, California, yet discovered, reach only 450 feet, the average size being from 300 to 400 feet in height, and from 25 to 34 feet in diameter. The wood of these trees closely resembles red cedar, and the reddish-brown bark is sometimes 18 inches thick, and the age of some of the oldest has been computed at 2000 years.

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## TO CORRESPONDENTS.

**TODEA SUPERBA.**—*R. B.*—This lovely fern is so nearly hardy that it may be grown in any greenhouse. Being of delicate texture, it is a capital case fern. Shade and moisture, and a rather still atmosphere, are essential to the production of a fine plant, but stove treatment and stifling are both bad for it, except when young.

**HEATING A SMALL GREENHOUSE.**—You only want a three-inch pipe all round. You must not make the air-pipe immediately over the furnace, but at the extreme end of the flow-pipe ; a little reflection will convince you of this. It is a matter of January.

fact that these small boilers are soon made hot, and soon get cold; therefore, in changing from flue to hot-water pipes, you are probably doing yourself a wrong. For houses of any size, hot water is not only the best method of heating, but the only method that should be tolerated now-a-days, but for small houses it is the worst method of all, unless the heat is derived from a gas flame, which is a *constant* heat. When gas heating is well done, it is the perfection of heating for small houses, for flues are attended with many annoyances and some risks. Nevertheless, the flue is the best, because of its long retention of heat, unless gas is used. We are no friends to small boilers and small pipes anywhere, and least of all for amateurs who are much and often away from home. Another matter of some moment is that we should advise you not to attempt a horizontal flue for a small boiler; you will want a quick and certain draught, so that on emergencies you can make sure of getting a fire, which with a horizontal flue on a cold night may prove a slow process.

*M. B., Warrington.*—Five and six-inch pots will be the most suitable sizes for all the subjects mentioned. From four to six anemone and ranunculus roots should be put in each pot, according to its size, and from six to eight scilla bulbs. Let the pots be clean and well drained, and use a compost consisting of turfy loam, three parts, leaf-mould one part, and old hotbed manure one part, and a sprinkling of sand. Keep them in a cold frame, with sufficient protection from frost, and remove to the conservatory when they begin to flower. The hyacinths and tulips must be planted without delay, or the bloom will be unsatisfactory.

*J. H.*—The variety mentioned in your letter has not, so far as we are aware, been employed as a stock for the Muscat of Alexandria. It is now proved to be a very unreliable grape, and we think the risk of employing it as a stock is too great to justify its being done. For our part, we would prefer rooting it out, and planting the Muscat, although an extra season would be lost in so doing. We shall be glad to hear from you with respect to the behaviour of the Golden Champion, especially as so few growers have been successful in its cultivation.

*ACHIMENES AND GLOXINIAS.*—*Inquirer.*—It is too early to start these unless they are required in bloom early for any special purpose. They are not required for conservatory decoration until the middle of July, and there will be no difficulty in having them in bloom by that period, if they are started in March, and then grown on freely. To start them now, the assistance of bottom-heat will be necessary.

*CALADIUMS DECAYING.*—*B. W.*—Take the corms out of the soil, and, after removing the decayed parts, fill the wounds with dry silver sand, and place them upon a shelf in the stove, and there allow them to remain for a week or so. Afterwards place them in empty flower-pots, and cover with dry silver-sand.

*THE CULTIVATION OF FILMY FERNS.*—*Amateur, Highgate Hill, N.*—Messrs. J. Backhouse and Son, of York, who have the best and most complete collection of filmy ferns in the country give in their "Catalogue of Hymenophyllums and Trichomanes" the following directions for the cultivation of this class of ferns:—"As combining delicacy of texture with beauty of form, no class of Ferns can at all compare with those contained in the two genera *Hymenophyllum* and *Trichomanes*. From the wonderful transparency of the fronds of many of them, the name of 'Filmy Ferns' has been given to the tribe. Not a few are so extremely thin that 'Diamond print' may be easily read *through* their fronds. When laden with moisture,—and especially with moisture *condensed* upon the fronds, by precipitation from the atmosphere, and reflecting a powerful light, no polished emeralds can surpass the sparkling brilliancy of the drops which hang at the tips of almost every pinnule. Inhabiting shady ravines and damp forests chiefly in mountain districts where the air is always charged with moisture, these require a degree of humidity in the atmosphere much beyond what is needed for other ferns. Not a few of the most beautiful enjoy a very cold and damp climate, thriving vigorously with a temperature but few degrees above the freezing point; while some (and *probably all the charming species of Southern Chili*) bid fair to prove *perfectly hardy* in our climate under the conditions in which our own mountain species, *H. Wilsoni*, thrives. They must not be frozen dry (though some of them will bear even this); but if buried in snow, or frozen into a solid mass of ice, will "thaw out" as though they had enjoyed quite a treat! Imagine some of the deep mossy chasms of our mountain districts in Wales and Cumberland clothed with sheets of such ferns as *Hyme-*

*nophyllum caudiculatum*, *fuciforme*, *Magellanicum* and *cruentum* ! And there is not a doubt of their thriving perfectly in such situations. No vegetable forms could be more lonely, and they must assuredly claim the favourable notice of multitudes when their charms are known. Unfortunately most of these gems are still rare and costly. Owing to the extreme difficulty of getting them down from inland mountain regions, and still more from the 'terrible ordeal' of having to endure long voyages through the tropics, the 'decimation' which the importer has to endure is so great as frequently to make the cost price of each survivor very high. Sometimes a mere fragment lives, and many years have to roll by before there is a possibility of multiplication. As a rule, when once 'established,' they are easy to cultivate. Many of those from temperate climates—like the species of New Zealand and Chili—thrive well in Wardian Cases, and other positions, in an atmosphere fitted for the 'Killarney Fern' (*T. radicans*) and our wild British *Hymenophyllums*. Those which have hairy fronds usually suffer by such mechanical watering, and prefer to be moistened only by condensation. Nearly all thrive well in sandy peat mixed with a little loam, and numerous pieces of broken sandstone. The creeping *Hymenophyllums* do not like to have their slender rhizomes buried. Most of these succeed best on sandstone very slightly covered with the mixture of soil just named; their 'nature' being to creep upon the surface of the rock, under or among the mosses which coat it; the slender rootlets only being buried. A very high temperature is especially to be avoided. Two or three hours of a dry and heated atmosphere will sometimes undo the work of years. Good light, with absolute protection from every ray of actual sunshine, is the point to be aimed at. Few only like deep shade. The Killarney Fern in a wild state sometimes grows in positions so gloomy that its fronds are scarcely discernible, and some of its West Indian congeners (*T. spicatum*, for instance), also court deep shade. In the following catalogue, where two temperatures are given, the *best* extremes of winter and summer are intended. For instance, '40° to 60°' implies that *above* 60° in summer is as much 'a step in the wrong direction' as *below* 40° in winter. In our hottest summer weather it is difficult to maintain the low temperature of 60°, but this does not alter the fact that it would be better for the ferns if we could! Being chiefly 'mountaineers,' they enjoy very cool nights in their wild stations, even in summer; and it is well known that on some of the tropical plateaus where they abound, at an elevation of 7000 to 8000 feet, the annual variation of temperature scarcely ever exceeds 25°. Purity of water is also an important matter. A *Hymenophyllum* or *Trichomanes* frequently moistened (by hand) with water containing lime, quickly loses its vigour. Rain water is the best for hand use, but no kind of watering of the *fronds* is at all comparable to that effected by the heavy 'dew' of condensation, which is, of course, perfectly pure, assuming the air of the house to be so." In the Catalogue thirty-four species and varieties of *Hymenophyllums*, and nearly fifty species and varieties of *Trichomanes* are described in popular language. We have grown the Killarney and other filmy ferns for many years, and have not experienced any difficulty whatever in their management.

**FERN PHOTOGRAPHS.**—*A Lady Subscriber.*—The *American Gardener's Monthly* gives the following directions for taking photographs and fern fronds. Any chemist will be able to supply you with the chemicals, and the cost will not be heavy. The materials used are nitrate of silver, hyposulphite of soda, a flat camel's hair brush, printing frame, one or two porcelain dishes, and paper, all of which may be obtained of any photographer. First, as regards exciting. Dissolve one drachm of nitrate of silver in two ounces of rain water. When dissolved, pour the solution into a saucer. Pin a piece of paper on a board held horizontally; then with the camel's hair brush carefully brush this solution on till the paper will imbibe no more; then hang up to dry in a dark room. This process had better be performed by candle-light, as if the paper is exposed to the sunlight or to daylight it will turn black. It will be as well also when the paper is being prepared to mark it in the corner on the prepared side, that it may be better distinguished in the after-process. *Printing.*—Supposing there is good diffused sunlight, and the glass of the printing frame is cleaned well on both sides, place the object to be copied on the glass, face upwards, the excited paper on this, face downwards; then the back-board, which must be screwed down tight. The frame may now be carried into the light and placed facing the sunlight. Care must be taken that no shadow falls on the frame, otherwise it will present streaks. The time of exposure will be



about five minutes. As to firing, when the printing has gone deep enough, take the paper out of the frame and immerse it in the fixing solution, made by dissolving three ounces of hyposulphite of soda in one pint of rain water; let it be immersed for about five minutes, then place it in a pail of water for about six hours, changing the water two or three times, so as to completely wash away every trace of the soda, which, if allowed to remain, would cause the impression to fade completely away; after which hang up to dry as before. When dry, if the natural tint is required, colour picture like the original. The plates can be bound up in a book or kept loose in a portfolio.

**FINGER AND THUMB PRUNING.**—*R. S. T.*—The pinching of fruit trees is practised in all good gardens. The practice is intended to check the formation of wood, and promote the formation of fruit spurs. By some it is pretended that the knife ought never to be used in pruning fruit trees, but that is sheer nonsense; on the other hand, pinching judiciously performed is invaluable, especially where small prolific bushes are of more value than large trees that are many years acquiring fruitfulness. The ordinary rule is to pinch all first shoots back to the third leaf from the base and all second shoots to one leaf; but, like all other rules, it is subject to exceptions, and the true art of pinching must be learnt in detail, not from books but from the trees themselves. The pinching must not be commenced too early in the season, and the excessive stopping frequently recommended is worse than a waste of time, for it is positively injurious to the trees. Excessive pinching is more favourable to the production of worthless wood than it is to the development of fruit buds and spurs.

**MANAGEMENT OF GYMNOGRAMMAS.**—*T. Smith.*—When *Gymnogrammas* die at the points of the fronds, it may be conjectured that they are either badly drained or are kept too damp and too cold. As we cannot see the plants, we advise you at first to ascertain if they are properly potted; the drainage *must be perfect*. Next consider if they are exposed to drip, or if they get too much water, or if they are subject to draughts, or if they are too cold; for any of these evil conditions may occur in places where these beautiful ferns are not much grown. *G. Chrysophylla* is the finest of the whole family, and is called the "King of the Gold Ferns." It is a native of South America and the West Indies. The proper place for it is the stove; it should have a rich peaty soil, with plenty of sharp well-washed sand, and *never allow the fronds to be wetted*. When the flowers of pot roses fog off, it may be owing to bad drainage, a very damp and cold atmosphere, or want of ventilation. The Editor never supplies books or seeds; you can get the "Rose Book" through any bookseller; the price is 5s.

*Carlisle.*—See general observations on the subject.

**FERNS FOR A BALCONY CASE.**—*A Lover of Ferns.*—We understand that your fern-case occupies the position of a window, partly projecting beyond the line of the house, and the whole being visible from the apartment, the aspect of the case being west, or nearly so. The ferns selected should be hardy, and it is desirable they should be of bold handsome form and evergreen. Plant them in a mixture of good turfy peat chopped up to the size of hazel-nuts, with one-fifth of silver-sand added. Before putting in the soil, lay down two or three inches of broken flower-pots and clean broken bricks, and over that an inch of charcoal; then add four to six inches depth of the mixed peat and sand. By proceeding in this way you will give the ferns a fair chance to live and thrive. Some of our friends think it sufficient to buy the ferns, and then plant them in such a way that they are sure not to live, or at best they live only, and do not thrive. The following, amongst hundreds that are suitable, are recommended for their fine appearance and hardy constitution. *Scolopendrium vulgare crispum*, *S. vulgare lobatum*, *Polystichum lonchitis*, *P. angulare adnigratum*, *P. acrostochoides*, *Onoclea sensibilis* (deciduous, but fine), *Asplenium adnigrum*, *A. marinum*, *A. angustifolium*, *A. Michauxii* (last two deciduous), *Athyrium Filix-femina*, *Frizellia* (deciduous, very distinct), *Blechnum spicant*, *Ceterach officinarum*, *Lastrea æmula*, *Polypodium vulgare*, *Campobryum*, *Camptosorus rhizophyllus*, *Woodsia obtusa*, *Cyrtomium falcatum*, *Woodwardia Japonica*, *Selaginella obtusa*. These twenty are easily obtainable at comparatively low prices, they are various in form and colour, and would make a fine group in a large balcony case.

**NAME OF PLANTS.**—*A Yorkshire Subscriber.*—The variegated climber is *Vitis labrusca foliis argenteis*, and the fern *Polystichum angulare*.







CYPRIPEDIUM VEITCHIANUM.

## LADY'S SLIPPERS.

*(With Coloured Illustration of Cypripedium Veitchii.)*

BY GEORGE GORDON.



WITH but one or two exceptions, the *Cypripediums* are so neat in growth, beautiful in appearance when in flower, and, moreover, so easily managed, that they well deserve more attention than they at present receive from amateur and other plant-growers, who are not able to manage plants of large growth. I was pleased to see Mr. Nott's remarks on the old free-growing and free-flowering *C. insigne* last month, for that useful species should have a place in all collections of greenhouse or stove plants, for it is equally at home in either of these structures. With the exception of the British and North American *Cypripediums*, the species here referred to is the only one that can be grown successfully in a greenhouse throughout the year. But the merits of the tender kinds are such as to justify their being extensively grown wherever the convenience of a stove exists. Their proper place is undoubtedly in the orchid-house proper, but in common with many other of our most beautiful and showy orchidaceous plants, they do equally well in a stove devoted to the general collection of plants. Their cultural requirements are few, and so simple, that a very few words will suffice to convey a clear idea of the way in which they should be managed. The temperature most congenial to the tender species requiring stove treatment is one ranging from 55° to 65° during the winter season, commencing in October, and ending in March; and between March and October the temperature should range between 65° and 80°, according to the weather. The lowest temperature in each season being, of course, intended for periods when it is maintained entirely by artificial means. Unlike many other orchidaceous plants, the cattleyas and dendrobies, for example, they have no fleshy pseudo-bulbs from which they can draw support when the material in which they are potted is allowed to become dust-dry. Therefore, they must not be dried off at any stage of growth. The supply of moisture to the roots must be considerably less when the plants are at rest than when they are in full growth, but the soil should not be allowed to become quite dry, and remain so for any length of time, even in the depth of winter. During the growing season they will absorb an almost unlimited quantity of water, provided the drainage is perfect, as it will be, provided they are potted in the manner which will be described hereafter. It is not, however, desirable to keep the material in a constant state of saturation by watering the plants at stated intervals, whether they require it or not, but water should be applied before it becomes anything like dust-dry. An abundance of atmospheric moisture, which can be easily secured by pouring water upon the stages and paths once or twice in the course of the day, is most essential, and from the end of March until the

end of August, a light sprinkle overhead with the syringe once or twice a day will be of immense service in promoting a healthy growth.

A moderately light position, where they can be screened from the direct rays of the sun, is the most suitable. During the months of April, May, June, July, and the early part of August, and at all other times, they should be exposed to the full light. Orchids, as a rule, especially in small places, are overshadowed, with the consequent result of an immature growth, and a scarcity of flowers the following season. Cultivators who are not thoroughly acquainted with them are afraid of exposing them to a glimpse of sunshine, and the shading of orchid-houses and stoves in which a few orchids are grown, is put on in the morning long before the sun has acquired sufficient power to render its protection necessary.

The period for shifting and repotting the several kinds must be regulated by their season of flowering, and, as a rule, it should be done just as they are commencing to make new growth, and as early in the season as possible. The pots used should be somewhat large in proportion to the size of the plant, and filled from half to two-thirds full of large crocks to carry off the surplus moisture quickly. A light porous compost, in which the roots can extend freely in all directions, must be employed, and this can be secured by mixing turfy peat and sphagnum moss together in equal proportions, and then adding a fourth part of small crocks, nodules of charcoal and silver-sand, consisting of equal quantities of each. It may, perhaps, be useful to many to know that either peat or sphagnum may be used alone, if more convenient. Sufficient soil should be placed over the drainage to elevate the base of the plant slightly above the level of the rim, but it is not necessary to elevate them so high as other genera which are more susceptible to injury from an excess of moisture during the winter season. Those potted late in the season should be placed in the warmest corner of the house, and be encouraged as much as possible to complete their growth by the commencement of the autumn.

From the remarkably neat habit which characterizes all the species, a very nice collection may be grown in a plant-case indoors, provided the case can be placed so as the plants can enjoy full exposure to the light when necessary, and means exist for heating the case. Should any one feel disposed to attempt their culture in a heated plant-case, they should begin with *C. barbatum* and its varieties, and *C. insigne*, and add the choicer kinds when they have thoroughly mastered the cultivation of the others. The directions given for their management in the stove will be equally applicable to their culture in the plant-case.

The following are all good, and comprise the most desirable yet introduced to cultivation:—

*C. barbatum*.—A very beautiful free-growing species, with prettily marked foliage, and purplish and white flowers. There are several fine varieties, *nigrum* and *superbum* being the best.

*C. caudatum*.—A species as singular as it is beautiful. The flowers are produced on scapes averaging fifteen inches in height,



and have long curiously twisted petals, which hang down to a length of about twenty inches, producing a most wonderful effect. The prevailing colours are reddish brown and yellow, very distinct and beautiful, and of robust growth.

*C. concolor*.—A neat, dwarf-growing species, with pale yellow flowers, and prettily variegated foliage.

*C. Dayi*.—A very charming species, with large flowers, the prevailing colours of which are green, white, and purple.

*C. Farrieanum*.—Very distinct and beautiful; flowers white, brown, and purple, and rather large.

*C. hirsutissimum*.—A magnificent species, with very large, handsome, and richly-coloured flowers, robust in growth, and elegant in appearance.

*C. insigne*.—A useful old species, which should be more generally grown by amateurs.

*C. Lowi*.—A fine showy species, that can be highly recommended, although not equal to a few others.

*C. niveum*.—A very pretty, neat-growing species, with richly marked foliage, and lovely blush white flowers, which are very freely produced during the early part of the summer. It is very distinct, and well deserves a place in the most limited collection.

*C. Stonci*.—Strong in growth and very beautiful; flowers very large and richly-coloured, the prevailing colours being white, yellow, and rich vinous purple.

*C. superbians*.—Showy and free-growing; the flowers are rich in colour and freely produced, and the foliage is very prettily marked.

*C. Veitchi*.—A superb species, with richly-coloured flowers and beautifully variegated foliage. The portrait which accompanies these remarks is so faithful to nature, that a description is unnecessary, and it only remains to be said that it should have a place wherever cypripediums are grown.

*C. villosum*.—This is a magnificent species, of vigorous growth. The flowers are large in size, and of greenish yellow colour. It is of especial value because of its blooming during the winter, and the length of time which the flowers remain in perfection.

## CHRYSANTHEMUMS FOR THE CONSERVATORY.

BY H. CANNELL,

Station Road Nursery, Woolwich.



THE cultivation of the Chrysanthemum is undoubtedly extending amongst amateurs, and I hope it will go on extending, for with very little labour and skill the conservatory may be made to present a most bright and cheerful appearance during November and December.

To grow specimen plants or cut blooms for exhibition will, of course, require a very considerable amount of labour and skill, but of that branch of the subject it is not my intention to speak. My object in offering these remarks is for the purpose of inducing amateurs to

grow them for conservatory decoration, and to show them by what simple means a very beautiful display of bloom may be obtained.

When the plants are simply intended for the decoration of the conservatory, it is not necessary to begin propagating a stock so soon as it is when they are required for exhibition purposes, but the cuttings ought to be struck soon after they are to be had. Some push up the offsets much earlier than the others, but it will be found that those which produce the offsets first are best adapted for specimens. We begin by striking cuttings in November, and follow on with the work during December and January, and by that means have strong healthy plants early in the spring, which, when shifted into larger pots, start away vigorously, and soon make good specimens. To secure blooms of the finest quality, the wood must be thoroughly matured, and, unless the cuttings are struck early, it is impossible for the wood to become well ripened, and without ripe wood there will be no fine flowers. To produce dwarf bushes it will be necessary to stop the shoots two or three times; and, unless this can be done early enough in the season for the side-shoots to become thoroughly ripe, the result will be large plants, with flowers few in number or inferior in quality.

It is very common to hear persons saying, "Dear me, what beautiful flowers you have got; my plants are much larger than yours, but the flowers are comparatively small." This is entirely owing to their not giving the plants time enough for the growth to be well ripened.

Cuttings that are struck early, as recommended above, will require shifting into five or six-inch pots early in March, and then, as soon as the pots are well filled with roots, shift them into the pots in which they are to flower, which can be either eight, nine, or ten-inch pots. But, for ordinary purposes, the middle size will be found the most convenient. The compost for the first shift should be comparatively poor, but for the last shift it must be rather rich, say three parts sound turfy loam to one part of well-decayed hotbed manure.

During the time the stock is indoors, keep it near the glass, and ventilate freely, and remember that protection from frost is all that is required. Remove to the open air early in May, or before, if the weather will permit, and select an open position that is rather sheltered from rough winds for the summer quarters. There must be no overcrowding, and each row should be far enough apart for those who have to attend to the plants to pass comfortably between them. To reduce the labour of watering as much as possible, plunge the pots to about half their depth in ashes or soil, and turn the pots round about once a week to prevent the roots striking out into the plunging materials. When the roots are allowed to extend beyond the pots, a considerable part of the lower leaves will turn yellow when the plants are removed from the plunge-bed to the conservatory.

There are several ways of training, but for the conservatory a form intermediate between the dwarf convex specimens met with at exhibitions, and those with a single stem, grown especially for fur-

nishing a supply of cut blooms, is preferable. To secure specimens of the class here referred to, nip out the points of the main shoots soon after the shift into the five-inch pots, and then take out the points of the side-shoots as fast as it becomes necessary; but no stopping must be done after the first week in July, to afford the young growth time enough for it to become well ripened. The training of the young growth must be commenced early. From four to six sticks, about four feet in length, inserted in the pot, will be sufficient to keep all the shoots in their places. The arrangement of the branches must be systematically done, and the ligatures should be strong, but neat, and not drawn too tight.

Water must be supplied liberally during all stages of growth, and from the time they are established in the pots in which they are to bloom until the end of September, water twice a-week with guano-water, prepared at the rate of one ounce of guano to a gallon of water. After that period the guano-water must be much weaker, and when the blooms show colour it must be withheld altogether.

A light airy conservatory is the best place in which to bloom chrysanthemums, and they should be taken indoors early in October before the frosts are severe. Several flower-buds will be produced at the point of each shoot, but not more than two flowers should be allowed to expand on each, or they will be inferior in size and quality, and, if the foregoing directions have been complied with, there will be an abundance of flowers. Thin the buds as soon as it can be done with a penknife, or pointed pair of scissors, and leave those most favourably situated for making a good display. A little experience is necessary to know how to do this properly, for the smaller-flowered varieties do not require to be thinned so severely as those with large flowers, and the pompone varieties require very little thinning.

The conservatory must be ventilated freely throughout the time they are in flower, except in frosty weather, and then no more fire-heat must be used than is necessary to keep the frost out of the house. It is very important to know what varieties to grow, as well as to know how to grow them. Some varieties are suitable for one purpose, and some for another, and it is only by growing a large collection that one is able to form a just estimate of the value of the respective varieties. My collection consists of over three hundred distinct varieties in the several classes, and the following selections are the result of careful critical comparisons when the whole collection was in bloom during the last season:—

**THE BEST THIRTY-FOUR LARGE-FLOWERING VARIETIES.**—*Aurea multiflora*, pure yellow; *Beverley*, cream white; *Golden Dr. Brock*, bright golden yellow; *Guernsey Nugget*, primrose yellow; *Hetty Barker*, white, free, and early; *Jardin des Plantes*, golden yellow; *John Salter*, cinnamon red, shading off to orange; *Isabella Bott*, delicate pearl white, tinted rose; *Lady Slade*, rose lilac, blush centre; *Lady Hardinge*, delicate rose; *Mr. Gladstone*, dark chestnut; *Mrs. Huffington*, medium size, blush white; *Mr. Brunlees*, Indian red; *Nil desperandum*, dark red; *Princess of Teck* (Pethers),

pure white; *Princess Beatrice*, bright rose pink; *Prince Alfred*, rosy crimson; *Pink Perfection*, light bright pink; *Rev. J. Dix*, orange red; *Sir Stafford Carey*, chestnut; *Venus*, peach; *Beauté du Nord*, violet carmine; *Dr. Sharp*, bright crimson; *Gloria Mundi*, bright yellow; *Golden Beverley*, golden yellow; *Hereward*, purple; *Julie Lagravere*, crimson, dark; *Lady Slade*, rose lilac; *Lady Talfourd*, rose and lilac; *Lord Derby*, dark purple; *Little Harry*, golden amber; *Mrs. G. Rundle*, pure white; *Prince of Wales*, purple violet; *Venus*, peach.

THE BEST TWENTY-FOUR POMPON VARIETIES.—*Andromeda*, cream and white; *Bob*, dark crimson; *Cedo Nulli*, white, tipped with brown; *General Canrobert*, pure yellow; *James Forsyth*, crimson and orange, new; *Golden Cedo Nulli*, light yellow; *White Trevenna*, pure white; *Salamon*, dark carmine and rose; *Mrs. Dix*, blush and rose; *Lizzie Holmes*, canary yellow; *Rose Trevenna*, rosy blush; *Adonis*, rose and purple; *Lilac Cedo Nulli*, rose and lilac; *Atala*, rosy lilac; *Brown Cedo Nulli*, brown; *Sainte Thais*, chestnut and orange; *Surprise*, white and rose; *Calliope*, ruby red; *Mrs. Hutt*, buff rose colour, fine new variety; *Aurora Borealis*, orange; *St. Michael*, bright gold; *Duruflet*, rose carmine; *Brilliant*, crimson scarlet; *Madame Martha*, very fine dwarf white.

THE BEST FIFTEEN JAPANESE VARIETIES.—*Aurantium*, clear golden yellow; *Comet*, orange yellow; *Leopard*, Indian red; *Red Dragon*, red chestnut; *Robert Fortune*, amber; *Grandiflora*, golden yellow; *Madame Godillot*, reddish brown; *Prince Satsuma*, best yellow; *Yeddo Lilac*, lilac; *Turantula*, golden; *The Daimio*, pink lilac; *Wizard*, maroon red; *Chromatella*, chrome; *Dr. Masters*, yellow and red; *Hero of Magdala*, dark red; *James Salter*, lilac pink, very beautiful.

## TEA ROSES ALL THE YEAR ROUND.

BY W. D. PRIOR, ESQ.



OR button-hole and hand bouquets, and for furnishing vases in indoor apartments, the value of Tea Roses is now well-known and generally admitted. We will not, therefore, pause to consider their merits, or to speak of their usefulness, but will at once proceed to deal with the best means of securing a supply of well-developed blooms during the longest possible period. Some of the hardest kinds may be grown entirely in the open—such, for example, as *Gloire de Dijon*—but to have the more tender varieties in anything approaching their true character, the assistance of glass is essential. When grown in the open border, there is a great risk of their being destroyed by frost in winter, of the young growth being injured by easterly blasts in spring, and of the blooms being burnt up by the summer sun. But with the aid of glass there is no risk whatever, and the cultivator can rest assured, that for his outlay of time and money he will be amply rewarded in the shape of an abundant supply of roses, un-



equalled for delicacy and fragrance throughout the greater part of the year. An expensive structure is not required; indeed, it is not desirable, and if one class of house is better than another for the cultivation of tea roses, the Paxtonian, of which illustrations are given at pages 205 and 206 of the "Rose Book," should have the preference. It is simple in construction, elegant in appearance, and, moreover, comparatively inexpensive. A large house is not necessary, but one twenty-five feet in length by ten or twelve feet in width, and about the same in height from the floor to the apex, will be quite large enough for accommodating a considerable collection. A friend of mine who, by the way, is a thorough rosarian, manages to grow a very nice collection in a small house constructed in a corner of his garden, with old lights bought at a sale; but that class of structure cannot be recommended, and is only mentioned to show what can be done.

The house can be erected upon stout supports of wood, or upon a brick wall, or brick pillars. The wall is undoubtedly the most desirable, because of its durability, and after all there is not such a wide difference in the cost. The house may be heated—indeed, it will be necessary if flowers are required very early in the season; but I would advise it not to be heated, for the temptation of filling it with bedding plants will be such as few will be able to resist, and hosts of enemies, in the shape of green-fly, red-spider, and mildew, will be introduced, and give an endless amount of trouble to the cultivator. The house should be devoted exclusively to the roses, and ought not to be devoted to wintering and hardening-off bedding plants. If the accommodation is not sufficient for the latter, and only one house can be built, let it be put up for them; but do not, under any consideration, build a house ostensibly for roses and devote it to geraniums.

Tea roses can, of course, be grown most successfully in pots, but the prudent amateur will do well to eschew the use of pots, and instead plant them out in the borders. By doing this he will avoid the labour of frequent repottings, daily waterings, and other attentions incidental to their cultivation in pots. Planted out they will, practically speaking, take care of themselves, and all the attention required will be to give the border a thorough soaking of water occasionally, and to syringe the plants overhead frequently during the hottest part of the summer. With this attention there will not be much danger of insect enemies of any kind making much headway, even if they put in an appearance. On the other hand, when grown in pots, they require incessant attention, and if neglected and the soil is allowed to become dry, and remain so for any length of time, the growth will soon assume a stunted appearance, and be very quickly overrun with green-fly, and other pests.

The pathway of a house of the dimensions mentioned above, should be not less than four feet, to afford plenty of room for attending to the roses with comfort. The remaining part of the house will, of course, be devoted to the borders, which should be about three feet in depth. Borders for roses and vines require preparing in much the same manner, but the former do not require

such a large body of soil. First of all, place a drain down the centre of each border, and then connect them with the main drains outside. This done, spread a layer of broken bricks and stones about nine inches in thickness over the bottom, and upon this put the soil. Roses require a substantial compost. It is important to have it open as well as rich, to encourage the production of masses of short fibrous roots. A compost consisting of turfy loam from an old pasture, hotbed manure, leaf-mould, and old plaster broken fine, will answer admirably, for whilst it is firm and rich, it will be sufficiently open for the free development of the roots.

There will be sufficient room on each side of the path for three rows, and, in addition, the strongest growing sorts should be planted at a distance of six feet apart for training over the roof. *Gloire de Dijon*, *Maréchal Niel*, *Climbing Devoniensis*, and *Belle de Bourdeaux*, are especially valuable for this purpose. In the management of the climbers it is important not to prune them too severely. They must not, of course, be allowed to cover the roof to the exclusion of the light from those underneath. All shoots not required should be removed altogether before they have made much progress, and thus afford those remaining greater facilities for acquiring strength and attaining maturity. The number of flowers that will be produced on plants of *Maréchal Niel*, when grown under glass, and allowed a moderate amount of room for development, is simply enormous. In a rose-house in the nurseries of Messrs. Standish and Co., at Ascot, it is by no means unusual to meet with over a thousand blooms and buds at one time, and upon the specimen in the conservatory at Wollaton Hall, Notts, the blooms range from five hundred to a thousand when at its best.

With respect to after-management of the house, very little need be said. Throughout the growing season the borders will require watering once or twice a-week, and the foliage syringed daily with tepid water. If mildew makes its appearance, dust with flowers of sulphur. The best remedy for green-fly is tobacco-smoke, and the house should be fumigated immediately its presence upon the young growth is detected. A constant circulation of air must be maintained at all times, and it may be said with safety that nothing is more injurious to roses than a stifling atmosphere. After the roses have been planted two or three years, the borders may be watered occasionally with liquid manure.

Without the aid of artificial heat they will begin to flower in May, and continue to produce blooms until Christmas.

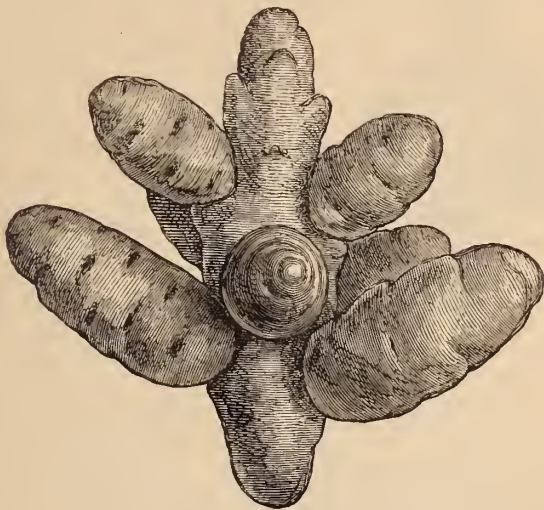
The most desirable varieties for cultivation under glass are:—*Alba rosea*,\* *Archimede*, *Belle Lyonnaise*,\* *Bougère*, *Comtesse de Brossard*, *Comtesse Ouvaroff*, *Coquette de Lyon*,\* *Climbing Devoniensis*,\* *Clotilde*, *Delphine Gaudot*, *Devoniensis*,\* *Eugène Desgaches*, *Général Tartas*, *Gerard Desbois*, *Gloire de Dijon*,\* *Goubault*, *Grandiflora*, *Homer*, *Jaune d'Or*, *Jean Pernet*,\* *Julie Mansais*, *La Boule d'Or*, *Le Mont Blanc*, *Louise de Savoie*, *Madame Celina Noirey*,\* *Madame Damazain*, *Madame de St. Joseph*,\* *Madame de Vetry*,\* *Madame Ducher*,\* *Madame Falcot*,\* *Madame Levet*, *Madame Margottin*, *Madame Maurin*, *Madame Pauline Labonté*, *Madame Trifle*, *Madame*

*Villermoz,\* Madlle. H. Jamain,\* Maréchal Bugeaud,\* Maréchal Niel,\* Marie Ducher, Marie Sisley,\* Moirèt, Montplaisir,\* Monsieur Furtado,\* Narcisse,\* Nina, Niphotos,\* Nisida, President,\* Regulus, Reine du Portugal,\* Rubens,\* Safrano,\* Souvenir d'un Ami,\* Souvenir d'Elise Vardon,\* Vicomtesse de Cazes.\**

The most suitable for a small collection are marked with an asterisk, but all are good and distinct.

### THE FIR-APPLE POTATO.

**W**E are indebted to Messrs. Sutton and Sons, of Reading, for the opportunity of figuring this curious and interesting potato. Every cultivator of potatoes must have noticed that when "second growth takes place" in the crop, many of the tubers are adorned with fingers and toes, and rendered comparatively worthless. Now this abnormal growth, which is always to be regretted, is imitated by the fir-apple



FIR-APPLE POTATO.

potato without being abnormal, for it is its natural character, and the whole crop is forked, and branched, and clustered as in the example figured. Nor is it a curiosity merely, for as an esculent it merits attention, being in texture and flavour excellent. To render it an elegant dish, the tubers should be served in their jackets, so as to preserve their curious form, and if served hot and dry, will be esteemed a delicacy.

## THE EGYPTIAN BEET.



THE Egyptian or turnip-rooted beet can scarcely be spoken of now as a novelty, but as it is not very extensively known, we present a figure of it in connection with a few remarks. In form and size the root resembles a turnip, but its colour is a deep purplish red. It may be grown to a weight of three or four pounds, but the larger the



EGYPTIAN BEET.

root, the less useful is it, on account of the coarse texture of the largest samples. It forms one tap-root only, which is as fine as a mouse's tail, the whole of the bulb being formed aboveground. When of moderate size—say not larger than a man's fist—the flesh is of a fine deep carmine or purplish red colour, fine in texture, and of excellent flavour. On deep rich soils, it is scarcely to be desired, because of its tendency to grow too large; but on dry shallow soils, where ordinary beets are more trouble than they are worth, this beet is invaluable, for in truth it will attain perfection on a bed of mere stones, if the seed is once fairly germinated. The sample of this beet shown by Messrs. Sutton and Sons at their last root show attracted considerable attention, and were much ad-

mired. It is, in fact, admirably adapted for exhibition, and being a profitable root, deserves the attention of the cottager no less than the gardener. In addition to its many good qualities, it is very reluctant to sprout in spring, and may therefore be kept for use as long as any.



## GREENHOUSE ACACIAS.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



ALTHOUGH this genus is very large, and includes, as Sweet, in his *Hortus Britannicus* tells us, several hundred species, it may be said with safety that not more than twelve at the outside are desirable for the most extensive collection of greenhouse plants. And for small collections half that number will be quite sufficient; and if more than that number of specimens of Acacias are required, it will be better to grow two or three of the sorts here enumerated. For a collection of six for a small house, preference should be given to the following. *A. armata*, a compact species, with dark green foliage and bright golden yellow flowers. This differs in character from all the other kinds, and is so thoroughly good in every respect, that where there is room for one only, preference should be given to it. The flowers are produced at the axils of the leaves on the growth of the previous season, and well-flowered branches present the appearance of huge bottle-brushes. It can also be raised from cuttings more readily than the other kinds, and is very effective when eighteen inches in height, and upwards. *A. Drummondii* is a neat-growing species, of a fine bushy habit, with small deep green pinnate leafage. The flowers, unlike those of the preceding, are cylindrical in shape, and give a well-flowered specimen a very handsome appearance. *A. grandis*, a fine species, of most elegant aspect, with pinnate leaves, and producing its flowers very freely in the spring. *A. pubescens*, a most graceful pendant-growing species, with bright green leafage. It flowers very profusely, and is attractive both in and out of bloom. This is very effective when about two feet high, but when planted out in the conservatory border, it assumes the most noble proportions, and when in full bloom has the appearance of a fountain of gold. A specimen planted in the border of the magnificent conservatory at High Leigh is now about ten feet in height, and the effect produced by it when in full bloom is indescribable. The only training it requires consists in supporting the leader with a neat stake, and regulating the branches with a few pieces of bast. *A. longissima elegans* is very graceful in growth, and very free flowering. *A. lophantha*, a bold and handsome species, with elegant feathery foliage. This is most valuable for growing for window decoration, as it possesses a hardy constitution, and its deep green leaves have a peculiarly cheerful appearance at all times and seasons. It is also valuable for grouping with subtropical plants in the flower garden during the summer months.

Where the conservatory is of sufficient size to accommodate plants of large growth, the undermentioned, in addition to the above, may be grown with advantage, namely—*A. affinis*, noble in growth, and very beautiful when in bloom. The leaves are very handsome, and the flowers are produced in huge clusters so early in the season that, with the assistance of the temperature of an intermediate house,

they may be had in bloom during January. *A. Riceana*, a new Tasmanian species, is very slender in growth, and well adapted for training up pillars and over the roof of the conservatory. The flowers are small, but produced in gracefully-drooping racemes of large size.

Seed of all but *pubescens* can be obtained of any of the principal seedsmen, at prices ranging from sixpence to a shilling per packet. All local houses may not keep it in stock, but they can of course procure it in the ordinary course of trade, so that there should be no difficulty in obtaining it.

Cuttings of some of the kinds, especially *armata*, strike freely, but the easiest way for an amateur to raise a stock will be to grow it from seed. Seedlings will, perhaps, vary slightly in character from the parent, but they will not differ very materially. The proper season for sowing the seed is in February and March, and then ample opportunities exist for the plants to become strong and well established by the following autumn.

Prepare the seed pots in the ordinary way, and fill with a light sandy compost, and cover the seed with about a quarter of an inch of the same soil. Previous to sowing, soak the seed in warm water for a few hours to soften it, because when sown without being soaked, it is a long time in germinating. Seed can be raised very well in an ordinary greenhouse, but it will, of course, germinate much quicker if the seed-pots are placed in a stove, vinery, or cucumber or melon pit. The short-jointed side-shoots when full grown, but before the wood has become hard, should be selected for cuttings. A mild bottom-heat will be of considerable assistance in promoting the formation of roots, although it may be dispensed with, and the cuttings struck in the greenhouse with the assistance of a hand-glass. Amateurs, however, will save themselves much trouble and anxiety by propagating a stock by means of seed.

When the seedlings are moderately strong, turn them out of the seed-pots, and put them singly in small 60's, or in three-inch pots. This will be sufficient for them the first year, and a shift into pots one size larger each year will be quite sufficient. After they reach nine or ten inch pots they will have attained a large size, and if there is not room for them they should be destroyed to make way for smaller specimens. If room can be afforded, a shift once in two years will be quite sufficient. They require well-drained pots, and a compost consisting of turfy loam and peat in equal parts, and a liberal quantity of silver sand to do them justice.

Liberal supplies of water are necessary throughout the growing season, and at no period must the soil be allowed to become dust dry. From the time they go out of bloom until the following September, they should be placed upon a bed of coal-ashes in an open situation out of doors, and during the time they are under glass a light airy position will be the most suitable. Acacias may be pruned, if necessary, without suffering in any material degree, so that if they grow out of shape there need be no hesitation in pruning them. It may be done any time previous to their starting into growth in the spring.

## SHRUBBY VERONICAS FOR THE CONSERVATORY.

BY R. OUBRIDGE,

Church Walk Nursery, Stoke Newington.



FOR conservatory decoration during the autumn months, the value of the shrubby Veronicas does not appear to be well known, even in gardens of considerable pretensions, and in the gardens of the London amateurs they are hardly ever met with at all. I have grown a nice little collection of them for several years, and have become extremely partial to them. With proper management, they flower profusely throughout September, October, and November, and are, therefore, very valuable, for they assist in bridging over the period between the time of the summer flowers going out of bloom until the chrysanthemums are at their best. There are now a considerable number of varieties in cultivation, all more or less good, but the best for a small collection are:—*Attraction*, very distinct; spikes large, flowers light crimson. *Blue Gem*, light blue, very dwarf in growth, and blooms continuously throughout the summer, not so valuable for the autumn as some others, but very useful for the summer. *Crème et Violet*, pink and rose; very fine in every respect. *Celestial*, light blue, distinct and good. *Demi Ponton*, rosy carmine, free and fine. *Imperialis*, amaranth red, changing to magenta; very fine. *Madlle. Claudine Villermoz*, deep indigo blue. *Purpurea Violacea*, violet. The blue-flowered varieties are the most effective, but the others are useful for affording a variety.

When a stock is once obtained, there will be no difficulty in keeping it up, as cuttings of the half-ripened wood will strike freely, if placed in a shady part of the greenhouse, or, what is better still, in the propagating pit. The wood is generally in splendid condition for propagating purposes in May, and cuttings struck at that period will make nice little plants, and produce a few spikes of bloom in the autumn; but, with good management, they will become large specimens, not less than two feet through by the autumn following. Instead of keeping them in pots all the year round, which entails an immense amount of labour during the summer season in keeping them properly supplied with water, plant them out in the second and subsequent seasons in the open border, and they will almost take care of themselves. The way to proceed is to cut them back early in March, and to let them make new growth near the glass, to insure its being firm and strong-jointed, and then by the end of May turn them out of the pots, loosen a few of the roots round the outside, and put them out in the border. The soil should be light and rich, to insure a vigorous growth, and, at the same time, promote the formation of an abundance of fibrous roots. The distance at which they are put apart must be determined by their size, but they ought to have sufficient space, so that when full-grown they will not become crowded together. Small plants, with but one or two

leading branches, may be stopped twice, but large specimens should not be stopped more than once, and in either case none of the shoots must be pinched back after the first week in July. Early in September take them up carefully, with as much soil as possible adhering to the roots, and put them into the smallest sized pots practicable. Bushy specimens, from eighteen to thirty inches in diameter, will be the most suitable size for the conservatory, but if they are required larger, they can be easily produced by planting them out annually, as here directed.

## SEAKALE CULTURE.—No. II.

BY A KENTISH GARDENER.



IN accordance with the promise given in my first article upon this subject, I will proceed to speak of the preparation of the roots, for the time is now at hand to be thinking of what should be done in this respect.

Growing seakale from seed is the plan above all others that I advocate, and for those who wish to do the same, I can recommend it with confidence, if they will proceed in the following manner. No time should now be lost in trenching up a plot of ground for the reception of the seeds. At the bottom of each trench put in six inches of good rotten manure. For a kitchen garden of one acre in extent, a piece of ground six feet wide and sixty feet long will be enough; and after being well trenched two feet deep, and manured as above stated, it can lay in that state till the third week in March, when it should be stirred up with a fork a few inches deep. Repeat the operation of forking up the surface again the following week: if on frosty mornings, so much the better, for by so doing a greater space of surface will be presented to the best of all pulverizers—the frost. But at this digging there must be added a liberal supply of manure. If this is well worked in with the surface soil, the young plants in the first stages of their growth will derive great benefit from it. This being done, the greater trouble is over, and the after-proceedings are very simple.

Many growers of seakale from seed sow in March, but my time is from the 5th to the 12th of April. I have sown in the second week of March, and I have sold at the same time in April, and the result is I prefer the latter. By sowing early there is some risk, for it is well known this seed is enclosed in a seed-vessel, which, when dry, is very hard, but when placed in the ground for a few days, becomes, by rapid absorption, moist, and almost of a woolly texture. This moisture it will retain till vegetation takes place, which it will very soon do, if the sowing is deferred till some days in April, as the earth by this time is daily getting warmer. But it is not so in March, for the temperature of the earth is then generally very low, and if these seeds are sown thus early, they make no pro-



gress till the warmth in the soil increases ; and the fact of their laying so long in the ground closely surrounded by moisture must tell very plainly that there must be some risk of their ever vegetating at all. Such, however, I have found to be the case, for I have always had a better plant by late sowing. I sow in drills about one inch and a half deep, and eighteen inches apart. I place three seeds thus . . . every fifteen inches, placing a small stick in the middle of the triangle. This stick will be found serviceable when the weeds begin to grow, for when hoeing becomes necessary, they will point out to the cultivator where the young plants are, and it will be the means of saving many of them from being cut up. They will require to be kept free from weeds throughout the summer, and will need thinning out early in June, leaving only one plant to each stick, and, of course, the most promising one should be left. They will be greatly benefited by repeated applications of manure water. If this is not at hand, to every row twelve yards in length sprinkle by the sides of the drills (but not on the *leaves*) a little guano three times during summer, but advantage must be taken of a showery day to do this, that it may be washed down to the roots. This is all the attention they will require to complete their growth, and at the end of November they will be adapted for any system of forcing the cultivator may wish to adopt. It is thought by some that it is next to impossible to grow from seed in one year plants suitable for forcing, but, nevertheless, there are plenty of gardens in England where it is done, and done well, under circumstances similar to the instructions I have given above ; but as a word of advice to the intending cultivator, I would remark here that a highly manured soil is essential for its production.

There is another method of growing it from seed which finds favour with some ; and a very safe one it is, if manure is not plentiful. The seed is sown in drills rather thinly ; one drill across a good wide quarter would suffice for a small garden, but if more is required, they should be twelve inches apart. They require carefully weeding, and about June thin the young plants out five or six inches apart ; the only after-attention they will want for that season will be an occasional hoeing to loosen the top surface. In March, or early in April the following season, they must be planted out fifteen inches apart in a piece of ground specially prepared by being trenched and well manured. When this is completed, and the same attention paid to them through the summer as an ordinary garden crop would receive, the cultivator may rest pretty contented and sure that success will attend his labours, for fine plants are the rule, and not the exception, in this case. Before I describe the other plan of increasing the stock of plants, I will just add that, when seed is sown, a sharp look-out must be kept as the plants make their appearance aboveground, for there is a small black fly particularly partial to the young plants, and I have sometimes found them very destructive. The best preventive is a sprinkling of dry wood ashes shaken slightly over the plants early in the morning before the dew is off.

To increase the stock of seakale plants from cuttings of the roots

is an old-fashioned plan, very good in its way, because simple, but, to my mind, there is this objection to it—a plant raised from a cutting generally produces two or three crowns, which necessarily must be small; whereas a seedling plant only has one, and this one will produce (if it is a well-grown plant) as much weight when forced, and of a superior quality, because larger, as a cutting plant will from its two or three crowns. This, then, is the reason why I prefer plants from seed above all others.

Cuttings from the roots may be made of any portion of it; the larger the cutting, the better plant will be obtained. These ought not to be less than six or eight inches in length. If when cutting, the pieces are as large as a man's finger, and the ground is good in which they are put, they will make nice plants for forcing the same year, but not equal to those we have to pay so dear for from the nursery. Fifteen inches each way is near enough to each other, if good plants are wanted. It is best to be careful, when making the cuttings, to cut the top of it clean and even; and when planting they should be placed just under the surface, and covered over with leaf-mould.

In the directions given here the reader will observe I am an advocate for plenty of space for all crops; and I feel pretty confident that the reader will do well to follow out these directions, for it is a serious mistake to crowd together a mass of vegetation, between which neither sun nor air can find its way, much less can a proper development take place.

## ERIOSTEMONS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



**ERIOSTEMONS** are not sufficiently showy in appearance to please people who are partial to brightly-coloured flowers, but they are quite attractive enough to justify their being accorded a place in all collections of hard-wooded greenhouse plants. They have all a naturally bushy and compact habit of growth, flower freely, and moreover early in the season, before the main stock of greenhouse plants come into bloom. For early exhibitions they are invaluable, and for exhibition they are much appreciated by those well acquainted with the class of plants to which they belong, and it is not at all unusual to meet with specimens from three to four feet in height, and as much in diameter.

Owing to the fine bushy habit which all the species in cultivation possess, the cultivator is spared all trouble of stopping the young shoots in the summer, or of pruning the mature growth in the winter, a few neat stakes alone being required to support the main branches.

It is, therefore, only necessary to say that they thrive best when potted in a mixture of equal parts peat and loam, to which a very liberal addition of sand has been made. And also that they must enjoy the advantages resulting from an abundance of light and a free circulation of air at all times, and that, whilst the cultivator guards against keeping the soil saturated with water, they must not suffer from dryness at the root.

The accompanying sketch of a portion of a flowering branch of



ERIOSTEMON CUSPIDATUS.

*Eriostemon cuspidatus* will afford a fair idea of the general character of the genus. The greatest difference which exists between the several species consists in the shape of the leaves, some having short, rigid, nearly round leaves, and others long leaves, like the species here figured. In addition to the above, *buxifolius*, *linearifolius*, *nerifolius*, and *pulchellus* are most deserving of attention. The flowers of all the varieties are either white, or pinkish white.

## THE PEACH AND NECTARINE.—No. I.

## THE BORDER AND THE WALL.



THE peach and nectarine require precisely the same conditions, and submit to precisely the same routine of treatment, and in respect of cultivation may be regarded as one and the same. It has been sufficiently proved that they are varieties of one and the same fruit, to render superfluous any speculation as to their complete agreement in habit of growth and climatal and cultural requirements. Whatever, therefore, in the remarks that follow is said of one, applies in every sense to the other; and to make distinctions between them in any general considerations would be absurd. To avoid any possible tendency to confusion in the mind of the inexperienced reader, the peach only will be referred to throughout the remarks that follow.

The peach is not quite hardy in this climate, but in a few favoured spots it may be grown as a standard, and will, in a particularly good season produce and ripen a fair crop of fruit. As a rule, however, it is best known as a wall-fruit, and only thrives satisfactorily when aided by the shelter and warmth of a wall. The footings of a brick or stone wall contribute in an important degree to the promotion of dryness in the border, and this in heavy soils is favourable to the prosperity of the trees, for not only is extreme cold injurious to the peach, but damp is equally so, whether of the atmosphere or the soil. For the successful cultivation of the peach in the open air, the principal requisites are a good border and a good wall. There are very few of either to be found, and consequently peach-growing in this country is in a somewhat unsatisfactory state. Usually the walls are too low and the borders too narrow for the full development of the trees, and consequently, while they are more troublesome to manage when restricted, so also they do not, when restricted, produce such fine fruit as when extended; or, in other words, when allowed and encouraged to attain to their natural dimensions as trees. A fourteen-inch wall, fourteen feet high, with a ten-feet wide border, should produce good peaches; and whoever, desiring peaches, will provide a wall, on some such scale for the trees, may hope for an ample return in due time. This, it will be said by some, is equivalent to a removal of the peach from the category of fruits grown in small gardens. Well, whether it be so or not, it is a fact that the majority of our best wall-fruits of all kinds require, as a rule, much more space both above and below than is allowed them, and to the necessary restriction must be assigned most of the failures that occur. We do not hear of failures in great gardens as we hear of them in gardens of moderate extent. It will be said that in great gardens great skill is employed, which the man of middling means cannot afford. That is true, no doubt, but great skill is not required for ordinary wall-fruit culture, but good walls and borders contribute immensely to success, for the simple reason that they favour



full development, by which term is implied vigorous growth, healthy condition, and an abundant production of fruit. And as to the exclusion of wall-fruits from middling gardens by the advocacy of real walls instead of the sham walls that abound, it may be said, in the interest of good gardening, that a portion of the money and labour customarily frittered away on trifles in smallish gardens would soon provide good fruit-walls, and furnish them fairly, if directed to so useful a purpose. However, that there may be no appearance of limiting peach culture to the few gardens in which things are done on a grand scale, it must be added that, in many unpretending places dwarf walls provide ample supplies of the very finest fruit, and we have ourselves grown good peaches on walls five feet high, the borders being nothing more nor less than well-made gravel walks on a foundation of clay in a damp locality, the trees facing east.

Exceptional cases may be instructive, but we must be careful they do not lead us astray. In preparing for peach culture, a south aspect is, as a rule, to be preferred, but south-east and south-west aspects will answer in the southern parts of England and Ireland. If there are several aspects in the same garden, a longer supply may be secured; and in a season when spring frosts do mischief, the east wall may prove the most fruitful, owing to the trees on it being retarded, and so escaping the devastation. As remarked above, we have, in the experimental garden at Stoke Newington, an old wall five feet high, the border being a gravel walk, and the roots of the trees in clay below the rubble. The wall not only looks east, but faces an open extent of grass land, over which the keen March winds, coming in strong force from the valley of the Lea, career with most pernicious violence. Yet from this wall we obtain fine samples of Noblesse, Royal George, and Barrington peaches in the worst of seasons. Being so fully exposed, the trees are late in starting, and generally speaking the killing frosts are over and gone before they are sufficiently advanced to be injured by them. So much then for a bad aspect, which is sometimes the best.

There is no soil so suitable for the peach as a sound, rather tenacious loam, resting on a dry bottom. A starving soil will not do at all. If it will not grow a cabbage, it will not grow a peach. If there is the slightest suspicion of stagnant moisture, the border must be drained; but, as it is quite possible to overdrain, it is well to guard against waste of money where drains are not wanted. Many an otherwise good peach-border has been ruined by over draining, and no peach-tree will be harmed by such a degree of moisture in the soil all the winter as a pear or cherry-tree would bear without injury. If the border has to be made, procure for it, if possible, the top spit from a pasture and chop it up without waiting for the grass to rot. If the soil is heavy, a depth of two feet will be plenty; if the soil is light, it may be six inches deeper with advantage, and the bottom should be formed of hard rubble in ordinary cases; but in very cold clay soils it will be well to form a concrete floor sloping to a drain—the slope to be at the rate of one foot in eight, and the drain three to four feet deep. It is not] well

to load the border with manure in the first instance, but in districts where the soil is naturally poor a small proportion of good fat stable manure should be dug in. When a very heavy soil must be used, it will be well to dig in plenty of broken bones and smallish brick rubbish to render it somewhat porous, but a *firm* border is always required, for the roots of the peach must take a firm grip of their station for the trees to do well. The width of the border must be proportioned to the height of the wall, and if a rule is required, nine inches of border may be allowed for every foot of wall. A very narrow border, say a yard wide, may, however, suffice to begin with, but it must be enlarged, as the trees get up. In places where it is difficult to obtain good loam, it may be a great advantage to begin with a narrow border, as time will thus be gained for saving the scrapings of ponds and ditches, and the top crumbs of clay banks, and other such suitable materials for enlarging the border. At every stage in the preparation and keeping of a peach border, the cultivator must guard against its becoming close and pasty. The more it resembles fresh putty, the more likely is it to poison the trees. Hence, according as the texture of the stuff may indicate it to be needful, dig in broken bones, broken bricks, charred earth, and the rougher parts of the stuff from a "smother." To make short of this point, take care to provide a border sufficiently nourishing, and into which the air and the sunshine can penetrate to warm and nourish the roots. When peach-trees have been long established, and have in some part exhausted the border, is time enough to employ strong manure. Then it will be well to put on a mulch of fat manure, after the border has been well warmed by the sun. This will keep the roots moist during the hottest days of summer, and every shower will carry down some of its fertilizing properties to swell the fruit and promote the vigour of the trees. At the end of May is soon enough to mulch up each border. If done earlier, the roots are kept unduly cold through the summer, and weakly growth and canker are the consequences.

All this looks complicated, but it is not so. If we can grow, as we do, fine peaches on a dwarf wall, facing east, in a cold locality, on a damp heavy soil, there ought not to be any serious question of the possibilities of fruit-culture in small gardens. It is the duty of a public writer, if practically versed in the subject he writes about, to consider extreme cases, and to do so must take him over a considerable extent of ground. For this reason it is hoped this first of a series of papers on the peach and nectarine will not be considered prolix by readers of the FLORAL WORLD. S. H.

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## SUMMER VEGETABLES.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



It is by no means such an easy matter to keep up a constant and abundant supply of vegetables throughout the season as some people imagine; but by the exercise of a proper amount of judgment and a little hard work, all difficulties can be surmounted. I should like to see more importance attached to the cultivation of vegetables, because it requires just as much skill to cultivate any of the most important classes, as it does to produce a crop of grapes or a few flowering plants. All require considerable attention, some judgment, and a little hard work to grow them to the highest perfection, and perhaps the best evidence of a gardener's thorough knowledge of his duties is that found in a well-stocked kitchen garden. Where there is sufficient room, the cultivator should aim at securing a regular supply throughout the year, but where the space is too limited to admit of this being done, preference should be given to those in perfection in the summer season, because it is much easier to purchase such things as potatoes and onions than it is first-class peas, cauliflowers, lettuce, and other things which are of small value unless quite fresh. The cultivation of all the principal vegetables has been described in past issues of the *FLORAL WORLD*, and these notes are merely intended as reminders of work to be done, and will be as brief as possible, consistent with their being understood.

**BEANS BROAD.**—The *Early Mazagan* and *Beck's Gem* are the best for very early crops, and should be sown in January or February. The last does not exceed twelve inches in height, and according to the space occupied is wonderfully productive. For the main crops sow the *Green Windsor* early in March, and again about the middle of April. The soil should be well manured, and a cool, moist position selected if practicable. Those who are particularly partial to these vegetables should make a third sowing of the *Green Windsor* about the middle of May. The black fly frequently attacks them, and settles upon the tops of the stalks, which should be pinched off just below each colony, and burnt. The rows should be three feet apart, and the plants six inches from each other in the rows.

**BEANS FRENCH.**—These are most valuable in light soils and dry seasons, as they can be depended upon for producing good crops when the peas are burnt up with drought. It is no gain to sow very early, because of their tender constitution, very light frosts being sufficient to cut them down. To maintain a succession, sow a moderate breadth of *Sion House* early in May, and then make three other sowings at intervals of a fortnight. The *Negro Long-podded*, or *Pale Dun*, are the best for successional sowings. If *Scarlet Runners* are grown, it will only be necessary to sow two breadths of either of the last-mentioned varieties. Select an open position and sow in rows three feet apart. They should be thinned to a distance

February.

of six or nine inches apart in the rows, according to the character of the soil—the richer the soil is, the greater the amount of space required. It is very unwise to sow thick, because when overcrowded they do not produce anything approaching the crops they otherwise would do. The warmest situation the garden affords must be set apart for them. Like other kitchen garden crops they are most productive in soils that have been enriched liberally with manure and dug deeply.

The best of the climbing varieties is the *Champion Scarlet Runner*, which is a fine form of the old *Scarlet Runner*, having larger and more fleshy pods. It is comparatively dear yet, and those who deal with the latter in a generous manner will have abundant supplies of beans, and imagine, with some show of reason, that nothing better could be desired. Two sowings are necessary—one early in May and the other in the middle of June. The supplies from the latter will be most valuable, as they will be available when the peas and cauliflowers are becoming scarce. Where more than one row of each sowing is required, they should be made at a distance of not less than twelve feet apart, and the intervening space cropped with dwarf-growing vegetables. When the rows are near each other they should be four feet apart, and, in either case, it is necessary to thin to a distance of six inches in the rows. The space for each row should be marked out to a width of eighteen inches, and a liberal dressing of manure dug in, independent of any manure that may have been applied to the soil when dug in the autumn. It will be an advantage in case of a dry season, to form a little bank of soil on each side of the space marked out to facilitate their being supplied with water in dry weather. The other climbing varieties are all inferior to those here mentioned.

**CABBAGE.**—The first supply is of course obtained from plants raised the previous autumn. To follow the first crop sow at once a pinch of seed of *Wheeler's Imperial* and *Enfield Market* in a pan or box, and place in a gentle heat. These two will form a good succession, and to succeed these make a sowing of *Enfield Market* in the open border early in March. Those who prefer very small cabbage may sow *Atkins's Matchless* and *Hill's Incomparable*, both of which are very good of their class. The two first are the finest flavoured when sent to table about half-grown. The larger-sized cabbages should be planted fifteen inches apart in two feet rows, and the others twelve inches in eighteen inch rows.

**CARROT.**—The *Early Scarlet Short Horn* is the best for sowing for use early in the season, and the *Intermediate Scarlet*, the best for a main crop for drawing during the summer and autumn. The latter, moreover, is a good keeper. For the earliest sowing a warm border should be selected. Carrots do best in deeply stirred soil, that was liberally manured for the previous crop.

**CAULIFLOWER.**—To have this vegetable in perfection, deeply dug and heavily manured soil is essential, for it is simply impossible to produce good cauliflowers on poor, shallow soils. For keeping up a supply throughout the summer and autumn, sow the *Early London* in heat the first week in February and the first week in March.



Sow also a pinch of seed of the same in the open border about the middle of the last-mentioned month, and towards the third week in April sow the *Autumn Giant*, which, for general good qualities, is unsurpassed for a late crop. Plants raised in heat must be pricked off into a cold frame and planted out when large enough, which will be early in May. Those raised in the open border must be planted out before they are injured through overcrowding.

ENDIVE is not in much request until the autumn, but those who grow it for summer use should sow in May and June in a bed where they are to remain, to avoid the check received when transplanted in the summer. The *Moss Curled*, and *Green Curled* are the best varieties for the summer season. Summer crops especially require a deep, rich soil, or the produce will soon become tough and bitter.

LETTUCE.—The best of the cos varieties for summer use are *Paris White*, *Dimmick's Victoria White*, and *Sugarloaf Bath*. Of the cabbage varieties, *Drumhead*, *Tom Thumb*, and *Leyden White Dutch*, are exceptionally good. There are many others that are in every way first rate, but the above selection includes sufficient for ordinary purposes. Whether cabbage or cos varieties are grown, sow the first or second week of February in a box filled with light and rather rich soil, and place in a temperature of about 70°. Prick off in a cold frame when large enough, and plant out, when well established, upon a sheltered border. These will succeed the stock raised in the autumn. To form a succession, make a second sowing early in March in the open border. Two or three lots of plants may be had from this sowing if the largest are taken each time. All subsequent sowings should be made where the plants are to remain, for when sown in beds and transplanted they generally run to seed long before attaining their full size. To ensure a continuous supply it will be necessary to sow once every three weeks, the extent of each sowing to be regulated by the demand. The rows should be from twelve to eighteen inches apart, and the plants from nine to twelve inches from each other in the rows. The soil cannot well be too rich, and it will be an advantage if they are sown or planted in trenches a few inches below the general level.

PEAS.—Owners of small gardens will act wisely in not troubling themselves much about successional sowings of peas, for unless the greatest care is taken in the selection of sorts the chances are there will be a deficiency in the supply at one time and a superabundance at another. It should also be borne in mind that unless care is bestowed in the preparation of the soil and in attending to the crop when up, peas do not do much good when sown late. The next course to pursue will be to sow a good breadth of *Sutton's Ringleader* the first fine day after the appearance of these notes in print. Then follow a fortnight later with *Nelson's Vanguard*, sent out by Messrs. Sutton and Sons, of Reading, and the first week in March with *Quality* and McLean's *Wonderful*. For succeeding these, sow the first week in April, Veitch's *Perfection* and *The Prince*. By sowing the above-mentioned varieties in the order as here described, a regular and continuous supply will be maintained. It is very important to go to a good firm for the seed, to ensure their being true to name.

The last pea on the list is one of the very best in cultivation, but Hair's *Dwarf Green Mammoth*, which somewhat resembles it, and is only two-thirds the price is substituted for it.

The rows should, if possible, be from eight to twelve feet apart, and the intervening spaces cropped with potatoes, cauliflowers, cabbage, or other dwarf vegetables, and then both sides of the row will receive their full share of light and air, and the crops will be much heavier. There will be no waste of room by this arrangement.

Peas bear most abundantly when sown in richly manured ground, and it will be highly advantageous if the last three varieties are sown in trenches prepared in exactly the same manner as for celery, but filled to within a few inches of the general level.

All the above are about three feet in height, but where there is no difficulty in procuring tall sticks at a cheap rate, *Ne Plus Ultra*, which attains a height from six to eight feet high, can be highly recommended for the late crops. Last autumn it furnished us with an abundant supply until late in November. For growing without stakes the best is probably *McLean's Little Gem*, but it is well to bear in mind that very dwarf peas are not by any means profitable.

**RADISH.**—Select for the first and second sowings, which should be made in the first week of March and April respectively, a warm border, and for the subsequent sowings, a shady border. When the beds for the mid-season supply are in a hot position the radishes become unpleasantly pungent. A moderately light, but very rich, soil is the most suitable. For the first crop *Wood's Early Frame* is the most desirable, and for subsequent crops the *Olive-shaped*, *Turnip Rooted*, and *Superb Scarlet Short-Top* are all good.

**TURNIPS.**—It is a difficult task to keep up a supply of Turnips in a medium-sized garden, and they ought not to be grown at all in those of a small size. They require considerable space, and the roots soon become pithy after they are large enough for sending to table. Select a sheltered position for the first sowing, and a cool position for successional crops. Sow about once a month from the first week in March until the end of June, provided the weather is not too dry. It is useless to sow in very dry weather, as the turnip fly will eat the young plants as fast as they make their appearance above the surface. To prevent the fly injuring them dust with soot, as soon as the plants begin to peep through the soil. *Early Six Weeks* is the best for the first sowings, and it is also good for later sowings. The *American Red Globe* is also valuable for mid-season. The rows should be fifteen inches apart, and the soil must be moderately rich.

**VEGETABLE MARROW.**—The finest flavoured variety is *Hibberd's Prolific*, and it is also remarkably prolific. The *Short-jointed White* is also a good variety for those who like large marrows. These vegetables succeed best when planted upon a raised bed made perfectly level upon the top. Instead of sowing the seed in heat and planting out as is usually done, the amateur will do well by sowing the seed where the plants are to be grown, and covering it with a hand-glass or one of Looker's plant covers until it is up and the plants strong and the season sufficiently advanced to permit of their

being exposed. The handglasses, or plant covers, must of course be ventilated freely in suitable weather, and it will be advantageous to remove the glass altogether for a few days before they are taken away from the plants.

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## GARDEN GUIDE FOR FEBRUARY.

**KITCHEN GARDEN.**—Secure successional supplies of rhubarb, sea-kale, and asparagus. Plant early potatoes in frames, and main crops in the open ground.

Sow in the open ground peas, broad beans, horn-carrot, parsnips, beet, onions, round spinach, and cabbage; in frames, cauliflower, radish, small salads, and lettuce; in heat, celery and tomatoes. Plant garlic, shallots, chives, onions for seed, and bulbs of the tree onion for pickling.

**FRUIT GARDEN.**—Prune out-door vines, and lay in only the ripest of last year's shoots, at about eighteen inches apart, and not more than four eyes in length. Clean the wall, and nail firmly, using as narrow shreds as possible. Get ready netting and other protection for espalier and wall trees, and use it as soon as the buds begin to swell, during the prevalence of north-east winds. Strawberry beds bear well if made early this month, on rich, firm ground. Plant and prune bush fruits. Begin grafting as soon as the weather permits; scions thrust into the ground in bunches, with a tally to each, will keep a month, if necessary, and take better than if put on as soon as cut.

**FLOWER GARDEN.**—Box, saxifrage, thrift, daisies, sheep's fescue grass, and other live edgings, should now be made. Plant hardy herbaceous plants in the borders. Plant ranunculuses and anemones between the 1st and the 20th. Top dress auriculas, pansies, carnations, and roses. Roses may still be planted.

*Pyrethrum, Golden Feather.*—This useful plant for edging purposes and divisional lines should, for summer work, be sown about the middle of February. Place the seed pans in the propagating pit, and as soon as the plants are well above the surface, remove to the greenhouse. Prick off into shallow boxes, and when well established, harden off and plant out where required. For winter decoration, sow early in August out of doors, and plant direct from the seed bed. Plants raised from spring-sown seed are in every way preferable for summer bedding to those raised in the autumn, as they do not bloom so freely, and give so much trouble. They also keep more within bounds when planted out in a small state. The Golden Feather can be clipped into the most compact lines when required, but it is preferable to keep it in order with the thumb and finger.

*Ranunculuses.*—The cultivation of these beautiful flowers is a much simpler matter than is generally imagined. A deep, moderately rich and well pulverized soil is one of the most essential conditions for ensuring success; the beds, therefore, should be prepared in the autumn by first spreading a moderate layer of well

decayed hotbed manure over the surface, and then digging them up to a considerable depth. Leave the surface as rough as possible, to enable the weather to act more fully upon it. In February mark out the beds, and draw the drills at a distance of eight inches apart, and three inches deep, spread a moderate layer of sand in the drills, and plant the roots at a distance of five inches from each other, claws downwards, and cover with the finer portions of the soil. These flowers frequently suffer when in full growth from drought, and to prevent the winds and sun drying the moisture out of the soil, cover the surface soil between the rows with partly decayed leaves, or cocoa-nut fibre refuse. Take the roots up as soon as the foliage dies down, and after spreading them out for about a fortnight to dry, put them in paper bags, and store in a dry place.

**GREENHOUSE AND STOVE.**—Sow hardy annals in thin patches on the borders, and a batch of each in pans in cold frames. Strike cuttings of bedding plants; put dahlia roots in a gentle heat. Messrs. Barr and Sugden's Propagating Waltonian case is far preferable to dung heat, where only a few hundred plants are wanted. Autumn-struck cuttings put singly into small pots. Sow tender and hardy annuals of all kinds in gentle heat, also *Lobelia speciosa* for edgings. *Dentzia scabra*, *Weigelia rosea*, *Forsythia viridissima*, and pelargoniums are good plants to force this month. Fumigate cinerarias and other soft-wooded plants, if any appearance of green-fly. Greenhouse, 45° night, 50° and 55° day.

*Browallias*.—These charming flowers are seldom seen in the conservatory, although they are easily grown and very effective. Sow the seed about the third week in February, and place the seed pots in a brisk temperature. When the plants are about an inch in height pot off, and put in three-inch pots, three to each. Shift into larger pots as may be necessary, and after the end of April grow in a warm greenhouse or pit. Previous to that period a temperature of 65° will be the most suitable. A compost consisting of a mixture of light fibrous loam, leaf-mould, and sand, is the most suitable. The pots must be well drained, and liquid manure may be used about twice a week. Very little training is necessary, but it is important to keep the stock near the glass. A moderately sheltered situation should be selected for them when placed in the conservatory.

*Achimenes*.—These showy flowers, when properly managed, are simply invaluable for the embellishment of the conservatory during the late summer and autumn months. To grow them well is by no means difficult, but the assistance of a stove or cucumber frame is necessary, as they require a higher temperature than that afforded by the ordinary greenhouse during the earlier stages of their growth. Commence by turning the corns out of the old soil, and then spread them over the surface of pans filled with a light sandy compost, and cover with a thin layer of the same kind of soil. Place the pans upon a hotbed, and when the plants are about two inches in height, lift them carefully out of the pans with a moderate quantity of soil adhering to their roots, and put them in pots varying from five to



nine inches in diameter. The pots should be previously filled rather firmly with a compost consisting of equal parts turfy loam, fibry peat, and leaf-mould, and a fourth part of sand. The plants should be put in the pots at the rate of six to those five inches in diameter. Place them in a genial temperature of about 70°, and after the end of April they may, if they have made considerable progress, be removed to a warm corner of the greenhouse. Commence training out the young growth as soon as it becomes necessary, and select stakes of the height required, when the growth is fully developed, and secure it to them according to the progress. A moderate amount of shade and atmospheric humidity is highly conducive to a vigorous growth. Weak liquid manure may also be applied with considerable advantage after the pots are well filled with roots. Gradually lessen the supply of water after the plants go out of bloom, and when the foliage is quite dry, withhold altogether. Stack the pots on their sides in a dry place, where they can remain for the winter secure from frost. If the room cannot be spared for wintering them in the pots in which they are grown, shake the corns out of the soil, and put them in bags or small pots, and cover with dry silver sand. They remain in better condition when wintered in the old soil.

### LITERARY NOTICES.



THE Christmas book season did not add many novelties to the garden library, and indeed we do not at the close of the year look for any important works on rural affairs. Nevertheless, the booksellers have been careful to gratify every taste, and those who are especially interested in horticulture, botany, and natural history, have been generously considered in the literary ventures of the season. The completion of Mr. Wooster's "Alpine Plants" (Bell and Daldy) is an important event, for it must tend to popularise this class of plants, and if it does not instruct, will at least entertain those who are already familiar with them. About a hundred Alpine flowers are represented in the coloured plates, and every one is a life-like portrait, most exquisitely finished. Mr. Wooster's descriptions are by no means satisfactory, and the work will be valued for its lovely pictures much more than for its cold, hard, meagre text. Messrs. Groombridge and Sons send for notice a new edition of Mr. Slack's "Marvels of Pond Life," which they have included in their three and sixpenny series, which are alike remarkable for cheapness and elegance. This work has acquired a reputation consistent with its authorship, and needs no praise from us. It is, however, with peculiar pleasure we now direct attention to it, for the days are fast returning when the out-door naturalist will find agreeable pastime in hunting brooks and ponds, and he cannot have a better guide to the microscopic life than Mr. Slack's entertaining volume. The "Curiosities of Entomology," from the same publishers, is an amusing *melange* of

superb pictures and anecdotal essays on the more wonderful examples of insect life, and its adaptations and instincts. The "Rainbow Stories" have been so universally received as healthy contributions to the young people's library, that we need only say that a volume has been completed, and the stories it contains are in the best vein of each of their several gifted authors. Mr. Piper's "Profitable and Ornamental Poultry" is worth its weight in gold. It stands out amongst books of its class for comprehensive trustworthiness, amplitude of information, and thorough usefulness—the author always saying as much as may be needful on every point an amateur may need instruction in, and stopping at the line which separates terseness from diffuseness. The fourteenth issue of the "Garden Oracle" is a larger book than any of its predecessors, and is more fully illustrated. The special features are a new selection of bedding plants and a general review of progress in all departments of horticulture. Every lover of Virgil will thank Mr. Blackmore for his new and acceptable translation of the "Georgics." For the first time these inimitable descriptions of the "farm and fruit," and the "kine and bees of old" have been translated by a thorough scholar well versed in the actualities of the subjects described by the poet. Mr. Blackmore gives us new readings everywhere, not because he imports his own fancies into the translation, but, to speak the plain truth, because he understands his author better than any translator who has preceded him, not even Dryden excepted.

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### ROBERT JAMES, THE FIRST FOUNDER OF A CHRYSANTHEMUM SOCIETY.



INSTEAD of designating the late Robert James as the first founder of a chrysanthemum society, we might speak of him as the father of the chrysanthemum, for to him, more than to any other man, we are indebted for the popularity of our best autumnal flower, and, in connection therewith, for the perfection to which it has been brought by years of patient cultivation. To say that we record his loss with "regret" is to say too little, for that is the custom of the day, and is the language of mere reporting. It is with pain, and with a sense of a great gap having been made by death in a most respectable and genial circle of associates, that we record the death of Robert James, on Tuesday, the 28th ult., after an illness of but a few hours' duration; for he only took to his bed on the Sunday evening immediately preceding, and we saw him, looking as well as ever, only three or four days preceding that particular Sunday. Though most unassuming, and by no means highly gifted, his departure is widely and deeply felt; for he was the healthy centre of a healthy band, and kept together in the bond of good fellowship many who would have been otherwise separated by small jealousies and the rivalries that arise out of the conflict of interests. It is very hard to write that Robert James is no more; but the task is softened by the reflection that in his own peculiar walk of life he was a model and a pattern of uprightness, candour, kindness, and courtesy; in short, he was a good man, and we shall not soon "look upon his like again."

"The actions of the just  
Smell sweet, and blossom in the dust."

There is not much to be told of Mr. James's life. He was born at Downhampton,

Gloucestershire, in 1801, and consequently had reached the ripe age of seventy years, when the Almighty called him to Himself. He was a genuine member of the great "working class," possessed of education enough for the battle of life, and with a glorious reserve of common sense and moral hallast. Thirty-two years ago he became landlord of the "Rochester Castle" Tavern, Stoke Newington, and to the day of his death conducted his house as a cosy hostelry established to provide wholesome refreshment for man and beast, being always respected in the district as one of the gentlemen of his order. He was always an enthusiast in gardening, and one might see in the rear of the "Rochester" rows of chrysanthemums in pots, standing stiff and stark like regiments of recruits at their first parade, and afterwards meet with their flowers, resplendent in form and colour, at various of the autumnal exhibitions. But whence arose these autumnal exhibitions? Robert James was the unpretentious initiator of these important public institutions. It is just twenty-five years since our late friend James started the Stoke Newington Chrysanthemum Society, which to this day affords the model on which similar societies have been formed, save in one particular, that it was always too exclusive, "sticking to chrysanthemums only," while other and younger societies took into their programme fruits and fine-foliaged plants as useful accessories, and compelled the Stoke Newingtonians to amend their ways and enlarge the range of their sympathies, and acknowledge the relationships of their own flower to the whole vegetable kingdom. Now that chrysanthemum exhibitions are "common things," it is proper to record that the late Mr. James never cherished local prejudices in exhibiting. He contributed liberally to the two exhibitions held in the Guildhall of the City of London; he was a constant and most successful (and therefore welcome) contributor to exhibitions in all parts of the metropolis, enjoying always the best reward of an exhibitor's labours, a large share of the schedule prizes.

It is a matter especially interesting, though far from cheerful, that the twenty-fifth anniversary dinner of the Stoke Newington Chrysanthemum Society was fixed for the evening of the day on which Mr. James died. It need not, of course, be said that the dinner did not take place; but many of the members went to the house prepared to take their places at the "festive board," only to hear that death had entered the house, and that festivity must be, for the present, postponed.

The remains of our friend were committed to the dust on Monday last. He was buried with all the honours of a "civil soldier" in Abney Park Cemetery, the members of the Chrysanthemum Society attending the funeral in force, and a very large contingent of the Foresters' Court of the district also taking part in the melancholy ceremony. For many a day, and many a year to come, Robert James will be remembered with affection in Stoke Newington, whether by those who best knew his broad rosy Saxon face at the table of festivity, where he honestly represented the union of moderation with good cheer, or those who saw him in his place in West Hackney Church, the "picture" of an Englishman thanking God for all his estate and advantages. That he was a true Englishman in his broad shoulders, his broad countenance, his fresh complexion, his unpretentious manner, his uprightness, and his sacrificing kindness—that he was a true Englishman is enough to say; and he was such, as everyone who knew him will bear witness, rejoicing with the writer of this in declaring that in him we had a most teachable example of the axiom of Pope—

"An honest man's the noblest work of God."

—*Gardeners' Magazine*, Dec. 9, 1870.

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## HORTICULTURAL AFFAIRS.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.—MEETING OF FLORAL COMMITTEE.—The first meeting for the year was unusually bright and attractive. Several fine collections of Cyclamens, Primulas, Orchids, Hardy Conifers and Ivies were exhibited. The exhibitors of collections of nine Conifers were Messrs. Standish and Co., Royal Nurseries, Ascot; Messrs. Veitch and Sons, Royal Exotic Nurseries, Chelsea, and Messrs. Lane and Son, Great Berkhamstead, all of whom it is almost unnecessary to say, exhibited fine collections. In the Ascot collection occurred some fine specimens of the elegant-growing *Retinosporas*, and a nice specimen of the

beautiful Golden Irish Yew, which, in a few years hence, will probably occupy a prominent place in garden scenery. The only exhibitors of Ivies were Messrs. Lanc and Son, and Mr. Charles Turner, Slough, both firms exhibiting groups of exceedingly well-grown specimens, and they were first and second respectively. Mr. Charles Turner also exhibited twelve standard specimens of green-leaved Aucubas, with large well-developed heads densely furnished with their showy deep-red berries.

New plants were of necessity sparingly contributed. Messrs. E. G. Henderson and Son, St. John's Wood, sent a pretty group of Cyclamens and double-flowering Primulas. Some of the latter were especially good, and four were awarded first-class certificates. The varieties considered deserving of that distinction were—*Princess of Wales*, double white flowers, very large, full, and of fine form, the edges of the petals being finely fimbriated. *Exquisite*, warm peach, very double, of fine form, and neat in growth. *Filicifolia Empress*, a fine fern-leaved variety, with pure white flowers; very large, full, and beautifully finished. *Filicifolia Emperor*, this differs from the preceding in having flowers of the deepest rose.

In addition to the Cyclamens exhibited by the abovementioned firm, fine groups of these invaluable flowers were contributed by Mr. Wiggins, Worton Cottage, Isleworth, who had some with pretty and distinctly-marked foliage; Messrs. Veitch and Son, and Mr. Clark, Twickenham. Mr. Edgington, Strawberry Hill, sent four strong specimens of a good white-flowered variety. A large well-grown collection of red and white Chinese Primulas was shown by Messrs. Veitch and Son, and a group of the single white-flowered variety by Messrs. Dobson and Son, Isleworth.

Orchids were contributed plentifully by Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, Yorkshire, and Messrs. Veitch and Sons, and a few were also contributed by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway. The former had, in addition to several others, magnificent specimens of *Lælia anceps*, *L. acuminata grandiflora*, *Sophronites grandiflora*, and *Odontoglossum Dennisonæ*, to this a first-class certificate was awarded. Messrs. Veitch and Sons had a grand group of *Lycaste Skinneri*, and Mr. B. S. Williams a fine specimen of the beautiful *Cattleya Walkeri*; the latter also presented specimens of the yellow-berried *Aucuba*.

Special mention must be made of a group of Palms, and other plants, from Mr. W. Bull, Chelsea; and a very beautiful group of decorative plants from Messrs. Standish and Co., which included a number of well-flowered specimens of the beautiful *Bouvardia jasminoides*. This differs from *Bouvardia longiflora* in being more dwarf and compact in growth, and in flowering more freely. For ordinary decorative purposes, or for furnishing cut flowers for bouquets, it is one of the most valuable plants that could be grown. Mr. Turner exhibited several groups of Gold and Silver Zonal Pelargoniums to show their value for winter decoration.

The prizes offered for three dishes of Kitchen Apples were well contested, and two good collections of Kitchen Pears were staged. The first prize for apples was awarded to Mr. Parsons, gardener to R. Attenborough, Esq., Acton Green, for fine examples of Blenheim Orange, Golden Noble, and Wellington. Mr. Miles, gardener to Lord Carrington, who occupied the second place, had good dishes of Alfriston and Wellington. Messrs. Backhouse and Son, York, sent two dishes of Galloway Pippin, a fine kitchen apple, remarkable for its high quality, and the length of time it may be had in perfection. Messrs. Harrison and Son, of Leicester, sent two seedling apples, and two or three seedling apples came from other exhibitors; but none of them were considered by the Committee to be deserving of an award. Mr. Miles carried off the first prize for Pears with Catillac, Uvedale St. Germain's, and Vicar of Wakefield.

Mr. Batters, of Romsey, exhibited three well-finished bunches of Grapes; Mr. W. Paul, Waltham, a collection of Apples; and Mr. D. Piccirillo, Wigmore Street, Oranges, Lemons, Onions, Melons, Chestnuts, etc., from Naples.

Cultural commendations were awarded to Mr. Bray, Nynnehead Court, Wellington, for a good dish of Asparagus, and to Mr. Wilson, gardener to Earl Fortescue, Castle Hill, South Molton, for a brace of exceedingly well-grown Pines. The Electric Thermometer manufactured by Mr. B. S. Williams, Upper Holloway, was also exhibited, and the ingenuity evinced in its construction much admired by those who had an opportunity of examining it.



## TO CORRESPONDENTS.

**BLEACHING AND DYEING EVERLASTING FLOWERS.**—*J. C.*—Bleach the flowers by shutting them up in fumes of sulphur. Put a shovelful of hot cinders in a box in such a manner that they will not set fire to the wood-work. Then sprinkle over the cinders a large handful of sulphur, and place the flowers to be bleached in the box, and cover with some woollen fabric to keep in the fumes. The flowers should be elevated upon something so as to expose them more fully to the action of the sulphur, but they ought not to be put directly over the hot cinders. They may be dyed with "Judson's Simple Dyes," which can be purchased from most chemists and colourmen. Eighteen different shades of colour are manufactured, and are sold in small bottles. Directions for use are given with the dyes, if required.

**ROSE TREES DYING.**—In the early part of last summer I planted heliotropes on the same border where standard rose trees grew, and every tree has died where the heliotrope was close to the root of the rose. One tree appeared to be going the same way as the rest, so I removed the heliotrope, and that tree is fast regaining its former freshness. Can there really be anything in this, or is it a singular circumstance?—*J. G. Sproston*. [We cannot explain the cause of the rose trees dying off in the manner mentioned; but we do not believe that the heliotropium has killed them. It is certainly a most "singular circumstance."—*Ed. F. W.*]

**THRIP ON MELONS.**—*B.*—The only safe course is to fumigate with tobacco paper, and apply the syringe freely afterwards. Thrip and red spider are common pests of melons in consequence of a frequent mistake of cultivators. It is known that melons require less moisture and more sun than cucumbers, and some cultivators go to an extreme and allow their melons to be roasted, not knowing how to hit the happy medium.

**EIGHTEEN PINKS.**—*A. M.*—The following are all good, and suitable for exhibition, namely: Attraction, Beautiful, Brilliant, Charles Waterton, Delicata, Dr. Maclean, Eleanor, Ernest, Eugene, Invincible, John Bull, Lord Herbert, Lizzie, Mrs. Maclean, Picturata, Rev. G. Jeans, Scarlet Gem, Titens.

**WEEDS ON LAWNS.**—*Wordsley*.—You will find the information of which you are in need in the article on "Grass Lawns," which appeared in the *FLORAL WORLD* for November, 1871.

**JAPANESE WILD ROSE.**—*M. F.* requests the Editor of the *FLORAL WORLD* will let her know in next number if plants of the Japanese Wild Rose are to be had in this country.—[No. Apply to M. Linden, Ghent.]

**GRAFTING AND INARCHING FRUIT AND OTHER TREES.**—*A Young Gardener*.—It is by no means difficult to graft a fruit tree, but a considerable amount of practice is necessary before the operator will meet with much success. Inarching is a much more simple affair, but it is not always practicable. It is usually adopted in the case of grape vines, when it is desired to replace a strong, healthy vine with a different variety, because when a moderately strong cane is selected for the scion, and the operation is performed with a due amount of care, only one season will be lost, as a



Fig. 1.

a cane will be produced of sufficient strength to carry a crop the following season. The operation, as will be seen by the accompanying cut (Fig. 1), is extremely simple, and should be performed before the sap begins to circulate in the spring. The stock and scion are placed close together in a convenient position, and a slice of the wood and bark is taken off each, and they are then fastened together in the manner here portrayed. In practice it will be found convenient to fasten the stock and scion together by two strong pieces of bast, one above and the other below the wound, to prevent the possibility of their being accidentally separated when it becomes necessary to loosen the bast bound round the two branches when the scion commences to swell. This is a very simple matter, but it is of sufficient importance to justify its being especially alluded to. When the two pieces of bast have been fastened, a stout piece of bast should be bound tightly round, extending far enough to entirely cover the parts from which a slice of wood has been taken. When this has been made secure cover with a mixture of cowdung and clay worked up into a plastic condition, and to prevent

its becoming dry and cracking, fasten a little moss over it. In the case of grape vines a shoot ought to be allowed to push from the stock above the junction and grow unchecked until a union has been effected. The scions of grape vines should be cut back to one bud above the junction, and the young shoot carefully protected from injury. When a thorough union is effected the scion can be cut off just below where it is joined to the stock, but there should be no hurry in severing it from the parent. Fruit and other trees are inarched in the same manner as grape vines, excepting that the quantity of wood left above the junction may be more if considered desirable. In the case of weeping trees the stocks can be planted at a short distance from the tree intended to furnish the scions and allowed to remain until the autumn. Grafting is best done in March, after the sap is in active circulation, and as it is important that the stock should be in a more advanced state than the scions, the latter should be taken off and laid in by their heels in the open border until required for use. There are various ways of grafting; those most general being here pourtrayed. Fig. 2 is known as "cleft" grafting, but it is



Fig. 2.

Fig. 3.

Fig. 4.

not very generally adopted, excepting in grafting large branches. A triangular piece of wood is taken out of one side of the branch, and the scion cut to fit it, as here pourtrayed. The small figures on the left hand are the sections of the stock and scion after being prepared. Fig. 3 represents "saddle" grafting, which is a capital way of grafting when the stock and scion are both of the same size. The top of the stock is trimmed to a point, and a small piece taken out of the base of the scion in such a manner to ensure a perfect fit. Fig. 4 shows the most popular and useful system which is known as "side" grafting. The top of the stock and the base of the scion are cut to a uniform slope, and a small tongue cut in each to admit of their being joined together, as in the accompanying illustration. When the stock is the largest, the top should be nicely sloped off, and a piece taken off the side, and a tongue made to receive the scion. In all cases it is most important that the edges of the two barks should join on one side if not on both. It is essential to fasten them firmly together, and to thoroughly protect the wound with clay and cowdung mixed, and a covering of moss.

**HOTBED FOR PROPAGATING.**—*G. H.*—You do not say what is the size of the pit, but, whether large or small, you can easily make up a dung-bed in it for propagating. The principal matter is to take care that the dung is two or three times turned before making up the bed, and, after the bed is made, wait a few days before putting in any cuttings. The larger the pit, the easier it will be to manage. If you can get short dung that has been heaped up and fermented for some time, you might fill the pit at once to within a few inches of the glass, and you would have a nice sweet bed without much trouble. The cutting pots should be placed on the surface of the bed, if the heat is very strong, or the cuttings will be injured. A little air should also be left on night and day, to admit of the escape of the steam.





CYCAS RUMICARPA.



## CYCADS.

BY GEORGE GORDON.

(With Coloured Plate of *Cycas Ruminiana*.)

**A**GAVES, Cycads, Palms, and others of the noblest forms of vegetation have steadily risen in public favour, and we now find them in conservatories where a few short years since flowers possessing but little interest, and that of the most ephemeral character, were allowed undisputed sway.

These three families and the Tree Ferns and Yuccas constitute a bold and distinct group, well adapted for the embellishment of the conservatory, not only because of the immense amount of interest attached to them, but because of the few difficulties which beset the cultivator in their management. The Cycads, which combine the gracefulness of the Tree Fern with the noble aspect of the Palm, are remarkable for their adaptability to the conditions under which plants are of necessity grown in the conservatory. A considerable proportion of the known species, comprising some of the finest with which we are at present acquainted, succeed in the conservatory with no more warmth than is necessary to keep the ordinary stock of decorative plants in health. They merely require an abundance of light, with protection from frost and cold chilling winds; there are, therefore, no real difficulties connected with providing them with a sufficiency of warmth. It is true that some of the species will make a more rapid progress when in a temperature rather higher than that at which the conservatory is usually kept; but, on the other hand, it is equally true that reputed stove species are sufficiently hardy to admit of their being placed in the conservatory for the summer season. Further than this, the more hardy kinds are of the utmost value in the embellishment of the subtropical garden, as the manner in which the best known of the family, *Cycas revoluta*, has been employed for several years in the subtropical department of Battersea Park, affords ample testimony. It is not, however, of their adaptability for the open air that is now our purpose to speak. They are too rare, and are too likely to remain so, to admit of more than a solitary specimen here and there being put out.

Although the annual growth made by the most healthy specimen is exceedingly slow, it must not for a moment be considered of little consequence whether they are dealt with in a thoroughly generous manner, or kept simply in a state of semi-starvation. It is, indeed, of the highest importance that they should be dealt with generously, and although the effects of good management will not be so strikingly apparent as in the case of a geranium or fuchsia, or a number of other soft-wooded plants, it will show its effects in time, and the cultivator will receive an ample reward in having specimens of a highly increased value. In this respect they differ from soft wooded plants, insomuch that they steadily increase in value and yield a fair interest on the first outlay.

In practice it will be found that they succeed best in a conservatory kept during the winter at a temperature that will admit



ABORTIVE FROND AND NUT OF *CYCAS REVOLUTA*.

of the visitors enjoying the inmates with some degree of comfort. Conservatories are frequently put on a level with the greenhouse, and the temperature maintained suitable only for New Holland

plants, accompanied with such free ventilation that one cannot walk through them without taking cold. Cycads should be potted in a sound, turfy loam, and be supplied liberally with water during the growing season, and have moderate supplies during the winter, when it may be assumed that they will be at rest.

The Cycads occupy an intermediate position in the vegetable kingdom, and are diœcious; the male and female flowers—they deserve the appellation of “flowers”—being borne on distinct plants. It is a rather rare occurrence for them to flower under artificial cultivation, yet *Cycas revoluta* has flowered in several collections, and in the year 1870 the magnificent examples of *Cycas circinalis*, in the grand collection of Mr. B. S. Williams, of the Victoria and Paradise Nursery, Upper Holloway, flowered finely. The male inflorescence is in the form of a cone, the floral organs being arranged round the central stem in the form of scales. The female inflorescence also rises in the form of a cone, consisting of a large number of what are popularly termed abortive fronds. They somewhat resemble the budding horns of a fallow deer; are hard and bony in texture, and are covered with a thick, felt-like down of a rich brown colour.

The figure of the abortive fronds accompanying these remarks, affords a very clear idea of its structure. The nuts are produced at the joints or knuckle-like projections up the stem of the abortive frond, and have a very novel appearance. They are nearly as large as walnuts, oval in form, smooth and highly polished, and of a most brilliant vermilion colour. A fully developed crown will measure at least two feet across, and the nuts are so closely packed together that they present a most beautiful contrast with the warm tawny colour of the fronds. The process of fructification in the female plant occupies about twelve months, but were the means of fertilization at hand there can be no doubt it would be accomplished much quicker, as it is well known all flowers continue longer in a state of perfection if not fertilized.

The only means of propagation is, so far as we are aware, by the seed or nuts, and as these produced in this country are abortive, we have to depend on an increase of our stock to those enterprising nurserymen who, like Mr. Williams, import them direct from their native habitats. It may, perhaps, be comforting to those who have a conservatory of small or medium size, to know that the estimated increase in the height of the stem of *Cycas revoluta* is at the rate of about a fifth of an inch per annum, and that several hundred years must therefore elapse before a stem five or six feet in height is produced.

The most distinct and ornamental are *Cycas circinalis*, *C. revoluta*, *C. Ruminiana*, *Encephalartos Ghellinchi* (syn. *gracilis*), *E. dentatus*, *E. villosus*, *Dion edule*, *Macrozamia elegans*, and *Zamia Loddigesii*.

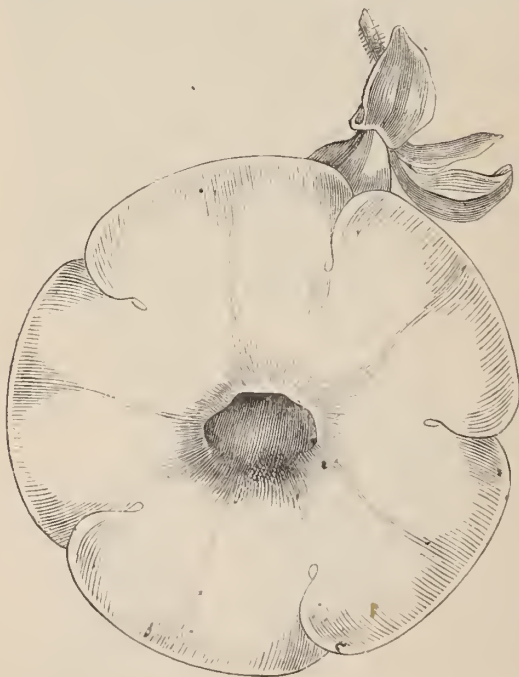
## PETUNIAS AND VERBENAS FOR THE CONSERVATORY.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington, N.



PETUNIAS and Verbenas are coupled together here because they require very similar management as regards potting, soil, training, and temperature, and what will suit one will suit the other. The best Verbenas are very pretty when grown in pots under glass, and will well repay the attention bestowed upon them, but for conservatory decoration they are less useful than the Petunias; and of these the double-flowered varieties are the most desirable, for they produce a much richer effect, and remain in good condition a much longer period.



SINGLE PETUNIA.

They are not often seen in such good condition as they should be, because it is commonly believed that autumn-struck cuttings are the most suitable for pot specimens. Whereas, excepting when they are required in full perfection very early in the summer, the spring-struck cuttings will beat them in every way.

For the purpose of laying a good foundation, it is necessary to take the tops off the healthiest autumn-struck plants, and strike



them in a genial bottom-heat. It is not necessary to weary the reader with the details of striking cuttings, because they should be dealt with in the same manner as cuttings of bedding plants, and that the Editor has reminded me will be dealt with by one of the most valued and practical contributors to the *FLORAL WORLD*. This part of the work will, therefore, be passed over, and I will at once say that they must not remain in the cutting-pots a day longer than is necessary. They will begin to grow freely as soon as they are furnished with roots, and this will be the best indication the cultivator could have of their being ready for potting off. Prepare a light rich compost by well mixing together two parts of turfy loam and a part each of leaf-mould and old hotbed manure, and about a sixth part of sand. Put the compost in the house a day or two before required for use, to give it a chance of becoming warmed through, and then put them singly in three-inch pots. They should remain a few days in the propagating pit after they are potted off, and then be removed to an intermediate house or a pit, where they can be kept rather close until such time as the roots become established in the new soil. They must not be coddled, but it would check the growth too much to take them to the greenhouse, where they would be fully exposed to a free circulation of air. If there is no choice about taking them direct to the greenhouse, then place them in the warmest corner, and keep the ventilators near them closed for a few days. Where there is a propagating pit and greenhouse only, the safest course will be to harden them off in the cutting stock pots, and then pot off, because a large number can then be protected with a hand-glass for a few days.

Immediately, and not before, they are established in the small pots nip out the growing points, to cause them to produce side-shoots, and when the latter are about two inches in length, stop them by nipping out the points. They will probably require to be shifted into larger pots before they are stopped a second time, but very often it is better not to repot until afterwards. It is a golden rule to shift when the pots are well filled with roots, but before they become potbound. Specimens in six-inch pots will be quite large enough for ordinary decorative purposes; but if they are required extra large shift them into eight or nine-inch pots as soon as they are well established.

Training must be proceeded with after the second stopping, and the simplest form possible should be adopted. All balloon or other wire trellises should be avoided, and a few neat stakes only be employed. The stakes should be inserted in such a manner as to admit of the formation of well-balanced specimens that when in flower will present an even concave surface. The stakes should range from twelve to eighteen inches above the surface of the soil, and those put in first must be of the full length, so that the shoots can be trained out according to the progress made.

From the time they are established in the small pots until they begin to bloom, a cold frame or greenhouse, where they can be placed near the glass, and enjoy a free circulation of air, will be the best position. Water liberally, and after the pots in which they are

to bloom are well filled with roots, use rather weak liquid manure alternately. Syringe them overhead occasionally, and keep a sharp look-out for green-fly, which, if the plants are allowed to suffer from the want of water, or kept in a close stifling atmosphere, will soon become troublesome. Tobacco smoke is one of the very best remedies, but some degree of caution is necessary, because the tender foliage is very susceptible of injury from tobacco-smoke.

In selecting varieties, those only of first-class quality should receive attention. The single *Petunias* should have large perfectly circular flowers like a convolvulus, as portrayed in the accompanying diagram, and the double varieties should be as double as a rose. There is an abundance of good varieties to select from. The under-mentioned are all first-rate:—

**PETUNIAS, DOUBLE.**—*Bonnie Dundee, Marquis de St. Innocent, Beauty of Clapham, M. Meyer, Lady Monerieff, Snowball, Singularity, George Bruant, M. Jeanne Donnat, Princess Louise.*—**SINGLE.** *Essential, Henrion, Spitfire, Single Beauty, Undine, Desdemona, Isabel, Othello, Perdita.*

**VERBENAS.**—*Antale Leroy, Ada King, Achievement, Beauty of Deal, Caroline Smith, Conspicuous, Mrs. Reynolds Hole, Mrs. Pochin, Nemesis, Shakespeare, George Peabody, Rose Imperial, Mrs. Boulton, Modele, and La Grand Boule de Neige.*

## AN ALPINE GARDEN ON THE WINDOW-SILL.



HE enterprising and well-known firm of Messrs. Barr and Sugden, seedsmen, 12, King Street, Covent Garden, London, have, during the last few years, introduced quite a new style of window-gardening, which we can heartily commend to the attention of our readers. Instead of embellishing the window-sill with geraniums, and other showy flowers, which are met with in the suburbs at almost every step we take, they form a miniature alpine-garden on the window-sill, and plant with dwarf-growing hardy subjects, which have a bright and cheerful appearance at all times and seasons, and present fresh features of interest almost every day. Mr. Barr, the head of the firm, has paid considerable attention to this matter, and anything more attractive to those who are partial to this type of vegetation than the window-gardens of his private residence cannot well be imagined.

As the firm possess large stocks of succulents, and other dwarf-growing plants suitable for this style of decoration, Mr. Barr has, of course, enjoyed great facilities, and certainly he has made the best use of them. In reference to this style of window-gardening, Messrs. Barr and Sugden observe:—

“The progress of horticulture, as exhibited in window gardening, is very pleasing. Turn where you will, in town or country, there is a healthy rivalry in the maintaining of a floral display at the parlour, dining-room, or drawing-room window, and this is not surprising, as there is in the tending of plants a softening and re-

fining influence which no other pursuit seems capable of imparting to the mind. But horticulture is one of those subjects whose length and breadth is the universe. Every country of the world pours in annually its offering. Men with their lives in their hands scale the most dizzy heights to secure additions to our choice Alpine gems; and they traverse the virgin forest with only the trail of the native savage for their guide, and risk their health in the malarious districts of Africa, and their lives in the wilds of North America, and for what? Not for gold, verily, but for the pleasure which is derived by ardent minds in collecting and bringing from their obscurity those lovely flowers that hitherto were—

‘born to bloom unseen,  
And waste their sweetness in the desert air.’

“These Window Gardens embrace so wide a range of subject that an ordinary bay window, such as is represented in our woodcut, can be made to accommodate 200 or more species. Each in its season is a source of interest, and develops its own peculiar beauty; so that a window arranged, as our illustration represents, will afford daily pleasure throughout the entire year. There is the autumn tint, the winter green, the freshness and variety of spring with the flowers of summer. Thus, in this horticultural microcosm is exhibited the ‘great dial of the year,’ whereon—

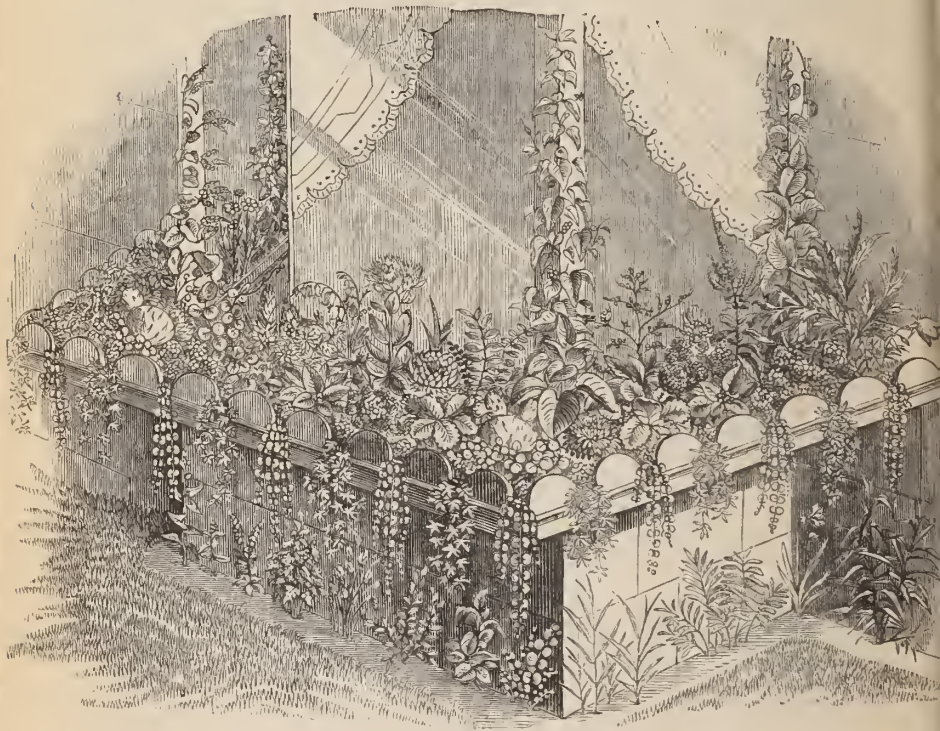
‘The seasons pass and strike the quarters.’

“The illustration of our new Window Garden represents Alpine plants, such as the *Achillea*, *Ajuga*, *Alyssum*, *Androsace*, *Antennaria*, *Arabis*, *Arenaria*, *Armeria*, *Artemisia*, *Arum*, *Aster*, *Aubretia*, *Bellium*, *Calystegia*, *Campanulas*, *Cerastium*, *Cheiranthus*, *Dianthus*, *Draba*, *Erinus*, *Gypsophila*, *Hepatica*, *Iberis*, *Iris*, *Linaria*, *Lysimachia*, *Myosotis*, *Opuntia*, *Oxalis*, dwarf *Phlox*, *Saponaria*, *Saxifraga*, *Sedum*, *Sempervivum*, *Echeveria*, *Silene*, *Statice*, *Thalictrum*, *Thymus*, *Veronica*, *Vinca*, etc. While to these can be added of bulbous plants, *Sternbergia lutea*, with its large yellow *Crocus*-like flowers; *Zephyrantes candida*, with its silvery white blossoms, and for spring blooming the intense blue *Scilla Sibirica*, the Spring Snowflake, the Snowdrop, the *Crocus*, the miniature *Hyacinth*, the *Narcissus Bulbocodium* and *Nanus*, the *Bulbocodium vernalis*, the dwarf early single Tulips, and many other bulbous plants, will contribute their charms. Here, within a limited space, is a garden with representatives from every temperate clime. The invalid who can only be moved in a chair can tend this garden, while those who are much confined in-doors have only to turn their eyes to the window to enjoy the refreshing influence of their Window Garden. To children it is a rare treat. The aspect is homely, the subjects are chaste, many of them peculiar in form, and in diversity matchless; so that to all, whether young, middle-aged, or old, these congregations of plants have a charm which is known only to those who have made such collections. In their culture there is an absence of all difficulty, the great bugbear to the uninitiated, the question of soils, of situations, of aspects, and the thousand and one things to



be attended to, which are a stumbling-block to some, and an excuse to others, for not being surrounded with the most humanizing and elevating of all material pleasures. The Window Gardens, planted as they appear in our illustration, simply require to be kept free from weeds, and attended to with water. This done there is no limit to their duration. The first cost is the investment, the daily pleasure is the interest.

"The construction is of the simplest possible character, so that any one can make such a structure, or have it made by an ordinary carpenter. We use yellow deal the width we wish the Window



ALPINE GARDEN ON THE WINDOW-SILL.

Garden to be. At the back is a strip of wood three inches in height, which can be higher or lower, according to taste, and scalloped or plain. The front is ornamented, as represented in the illustration, the structure resting upon blocks so as to raise it a quarter of an inch above the sill of the window, and with holes in the bottom for drainage. A compost is used of soil consisting of two-thirds road-scrappings, one-third loam, and if convenient an addition of leaf soil perfectly decayed. The soil is then elevated, so as to be highest in the centre, or it may be worked into mounds. Into this may be introduced a few stones, or a few shells, but care



should be taken that these are not made conspicuous. Then the plants should be arranged so that, looking from the window or from the outside, the effect is equally good. Between the scallops in the front a trailer should be inserted, and a *Sempervivum* to form a rosette between the scallops, or a little bit of rock with a *Sedum* or *Saxifrage* growing over it. When shells are introduced, we prefer a *Sempervivum* growing out of them, such as *Montanum*, or the Cobweb house-leek. Intermingling with those low-growing plants associate *Iberis*, and variegated *Polemonium*, and any other plants which give a little elevation. For the summer, a few of the Mexican Cacti might be introduced with great effect, and when removed in the autumn, their place occupied with spring-flowering plants, such as the *Myosotis dissitiflora*, etc.

"They can also be constructed by cementing tufa, sandstone rock, spar, shells, etc., on the window-sill, or what we should prefer, on a yellow deal board resting on a block a quarter of an inch high, so as to raise it off the sill, and the board having holes for drainage. At the back, slate may be used, or wood. The same kind of soil should be used, but the selection of plants should be confined to *Sedums*, *Sempervivums*, *Echeverias*, *Saxifrages*, *Antennarias*, *Thymus*, *Arenarias*, and plants of a dwarf growth or of a rugged aspect, this being what we call the Succulent Alpine Window Garden. It is of the highest order of beauty. We have enjoyed one at our residence for three years, and during the whole period we have neither expended time nor money, except the necessary labour in weeding and watering.

"In these Window Gardens refinement of taste has been more studied than brilliancy of colour. They are intended more for the pleasure of the inmates than for the effect they impart to the façade. They can, however, if required, be made to do duty for brilliant coloured summer flowers, or the Window Gardens can be removed for the few summer months, and give place to the ordinary flower box, and the gay-coloured geraniums replaced as soon as the cold nights show their effect upon the summer flowers."

It is proper to remark that the plants employed are by no means expensive, as a reference to the Autumn Catalogue of this firm will show.

**NEW HOT WATER APPARATUS.**—We learn from the *Builder* that Mr. Thomas Parker, of Newcastle-on-Tyne, architect, has patented a new Hot-water Heating Apparatus. The principles of the invention are comprised in the use of pipes of small bore for the flow and return of the hot water, laid chiefly on the floor of the building; and also the use of heaters, similar to those used in railway carriages, placed in the pews (if the building be a church), and in analogous positions in other buildings. The chief advantages claimed for this invention are greater efficiency, by the local application of the heat; a great saving of cost of apparatus; and flues, etc., under floors, are dispensed with.

## ZONAL PELARGONIUMS FOR BEDDING AND POT-CULTURE.

BY HENRY CANNELL, F.R.H.S.,

The Nursery, Station Road, Woolwich, S.E.



THE improvement of the zonal pelargonium has of late years advanced with such rapid and grand strides that it has been a difficult matter to keep pace with it. Looking back, it only appears the other day that our old friend Tom Thumb was in the heyday of its popularity, and considered by many the only variety worth growing, because it was thought that this class alone was suitable for bedding purposes. Now, where are we? Why, our old friend is nowhere, and the really good varieties can be numbered, not by the dozen or score, but by the hundred, representing almost every conceivable shade of colour, and many of them the grandest things we could have for the decoration of the conservatory. Some day or other I hope to see them appreciated as they deserve for the last-mentioned purpose, but at present very few people have an adequate idea of the magnificent display they are capable of making. For several years past I have paid much attention to them, and have endeavoured to show their adaptability for the conservatory, and have annually set apart the largest house in the nursery especially for them when in bloom. I am well satisfied with the result, and those who have had the opportunity of seeing the house during the summer and autumn have been amazed at the magnificent display they produce. This is mentioned to show what can be done, and not with a view to push my business. Some judgment is necessary in selecting them for the conservatory, because those best suited for bedding purposes are utterly unfit for pot culture, and those best suited for the conservatory are of no use for the flower-garden. The most desirable for growing under glass are those having flowers with broad, overlapping petals, and of a soft, intermediate shade of colour, and those, as we all know, are most unsatisfactory when planted out, because the first are too robust in growth, and the flowers of the second class soon become faded, and present a washed-out appearance. A few, certainly, with flowers of the finest form, are useful for bedding, as there are exceptions to every rule.

Of the varieties best adapted for bedding, it is not necessary to say much, because they could not well become more popular than they now are. It is not, however, in all gardens that the best sorts are grown, and in some instances the very best in some of the shades of colour are hardly known. I am enabled to speak with some degree of confidence upon this point, because my collection at the present moment consists of nearly five hundred varieties, and with but a few exceptions all were planted out in my trial ground last summer, and a very large proportion grown to specimen size in pots for the purpose of determining their value for that system of culture.

In fact the collection has been nearly as large for several years past, and the reason of its not increasing in numbers is because as soon as one of the old varieties is surpassed it is discarded to make way for the variety by which it is superseded. The new varieties that are no better than the older ones in the same way, are dealt with in the same manner, because they are not wanted. By this means I am able to find out which are the best in the several classes, and I am therefore able to speak with the greatest degree of confidence of the merits of each. Now, of course, no private growers will want such a large number of varieties as that mentioned above, but I would strongly advise them to have in a collection of (say) a hundred plants intended for the conservatory, at least seventy-five distinct sorts, in preference to five or six sorts and ten or twenty of each. Those I should recommend for forming a collection are comprised in the following selections, which I have divided into classes according to the colours of the flowers, and the purposes for which they are best adapted.

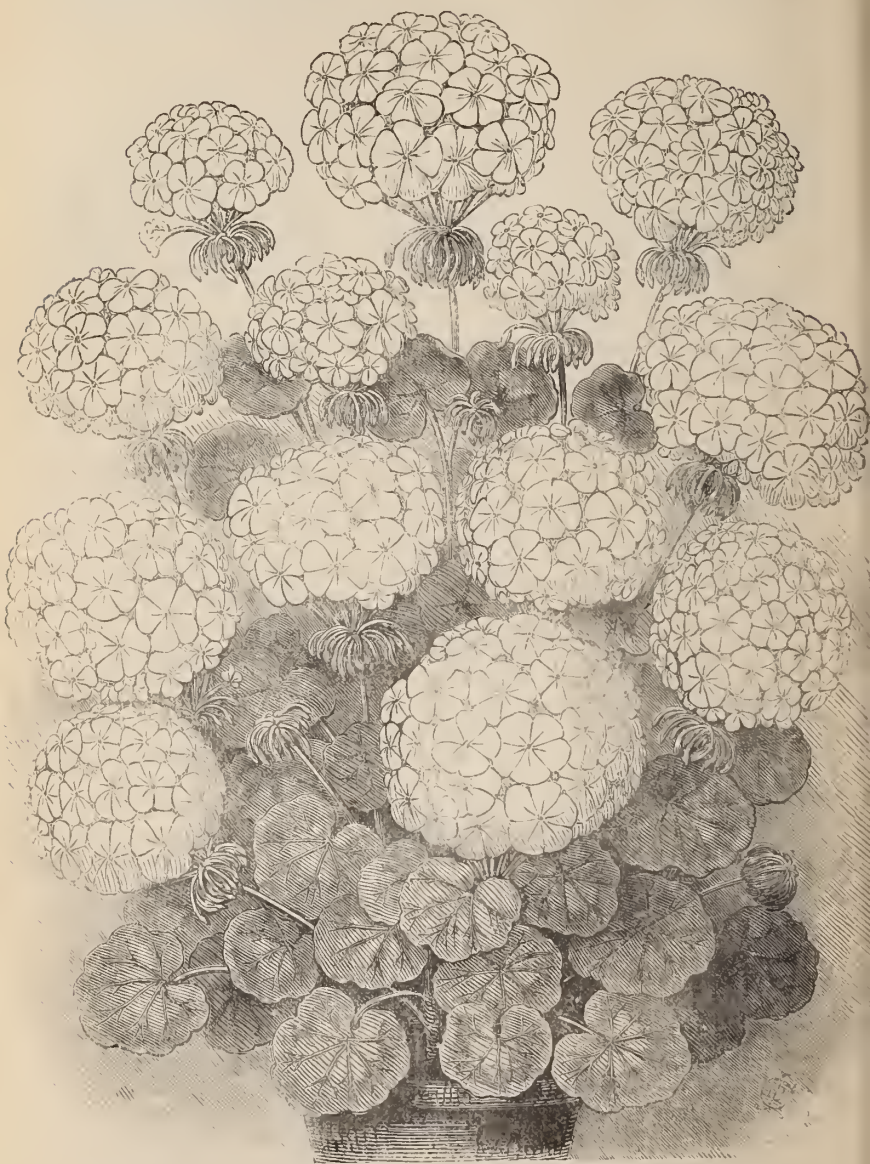
#### FOR POT CULTURE.

**SCARLET.**—The variety most deserving of first place in this section is *Sir Charles Napier*, which far surpasses Lord Derby, well known as one of the best, in every way. The flowers are very large, most perfect in shape, and brilliant in colour. *Lady C. Kennedy* is also very fine, and appears to be an improvement on Jean Sisley, which up to the present time is one of the most valuable zonals with scarlet flowers we have, as it is suitable for either pots or bedding. *Diana* is intermediate in colour between the last-mentioned and Louis Veuillot, and is the deepest scarlet-flowered variety we have with finely-formed pips. *Charm* is in the way of Lord of the Isles, but better, and therefore more valuable. *Splendour* is simply magnificent; for the colour is most intense, and the pips are as perfect in shape as they could be, but rather small. *Renown* is good; the flowers are of good form, and of a light orange scarlet. *Titian* has very large flowers, and is useful for large specimens. *Coleshill* is very distinct and good: the flowers are of fine form, and borne in large globular trusses. It is also valuable for winter decorations. *Monster* claims attention from its large trusses, which are so freely produced that it may be considered most valuable for very large specimens. *Pride of Kent* may be considered a good companion to Sir Charles Napier: the flowers are quite as large, but not of so good a form; the colour is a pleasing shade of orange-scarlet, and for distinctness and effectiveness it can be highly recommended.

**PURPLISH-BLUE.**—The varieties in this section produce flowers with a bluish-purple shade, and it is not too much to expect that they are the forerunners of a race of blue-flowered varieties. This section only comprises about three sorts, and all are remarkably good. The best of all is *Ianthe*, a new variety of last year; the flowers are very large, and of a very deep purplish blue. The next best is *Madame Mezard*, a variety imported from the Continent two or three years since, and now becoming generally known, and bearing out all that I have hitherto said in its favour. *Haidee* is also pretty, and promises



to be useful for bedding purposes ; the blue is more decided towards the end of the autumn.



CANNEL'S "MASTER CHRISTINE" PELARGONIUM.

WHITE WITH PINK CENTRES.—The good old *Madame Werle* is now surpassed by *Miss Gladstone*, *The Bride*, and *Eckford's Purity*,



all of which possess distinct qualities, and are most valuable for pots. The first is the best of the three for specimens, and the last the most useful for small pots.

**SALMON-COLOURED.**—There are some fine additions to this class; and to grow François Desbois, and several others which may be mentioned, is a sheer waste of time. *Madame Jean Sisley* is the best for large specimens, for the flowers are large, and freely produced in huge trusses—a grand addition. *L'Aurore* is the brightest coloured, and meritorious; and *Mrs. H. Fenn* is pleasing for small specimens.

**PINK.**—We have in *Master Christine* the most valuable of the class; the flowers are a deep bright rose-pink, and produced in the profuse manner here portrayed. It is very dwarf and dense in growth, and altogether it is a grand acquisition. As a proof of its merits permit me to say that it was the only single-flowered zonal which received a certificate of the first-class from the Royal Horticultural Society in 1870. *Mrs. Keeler* is a grand improvement on *Mrs. W. Paul*, and in every way desirable; the flowers are better in form, and of the most pleasing shade of soft rosy pink. *Adelaide* is also one of the finest of its class; the flowers are very stout, and perfectly circular. *Rose Rendatler*, although one of the oldest, still remains one of the best for large specimens.

**WHITE.**—In this class we must place *Mrs. Sach* first; the flowers are large, very pure, and the habit of the plant is such as to justify its being recommended as one of the best. *Maiden's Blush* is highly flushed with pink, or it would stand at the head of the whites, as it is very desirable. *Virgo Marie*, because of its value for exhibition purposes, deserves mention.

**ROSY SCARLET.**—In this group, *Demosthenes* and *Shades of Evening* are very fine, and perfectly distinct from each other.

**NOSEGAYS.**—Some of the nosegays produce such gigantic Hydrangea-like heads of flowers that they make grand conservatory plants. Some of them produce trusses of bloom as much as eight inches in diameter. The most distinct and beautiful for pot culture are *Mr. Gladstone*, scarlet; *Wellington*, deep maroon crimson; *Charles Dickens*, cerise, flushed with purple; *Reine Blanche*, white; *Pink May Queen*, deep pink; *Beauty of Lee*, pink; *Lucius le Nain*, orange scarlet; *Claude Lorraine*, deep purplish magenta; *La Père Hyacinthe*, orange scarlet; *Sunlight*, orange scarlet; *Sunshine*, orange scarlet, with purplish shade; *Masterpiece*, violet and orange crimson; *Pretender*, salmon; *Arthur Pearson*, purplish magenta, very distinct. These will form a good collection of nosegays, as each shade of colour is fairly represented.

To produce exhibition specimens several years are required, but in the conservatory they are not desirable, and medium-sized plants are in every way preferable, as a far more pleasing arrangement of colours can be produced. Early in March strong plants in three-inch pots should be selected and shifted into pots two sizes larger. They should then be placed in a pit or house where they will be near the glass. Here they can remain until they come into flower, and then can be removed into the conservatory either before or after repotting; if not before, they should not be shifted until they have

March.

commenced to make new growth, and if after, not until they are established in the new soil. Stop a second time when the young shoots are two or three inches in length, and then stop no more. Pot them in a rich loam, and admit air on all favourable occasions. At quite the end of the summer prune them back, and as soon as the young shoots are about half an inch in length shake the old soil from them, and repot in pots one size smaller; keep them rather dry during the spring, and then if they are put in eight-inch pots the following spring, they will form grand specimens in the course of the summer.

#### BEDDING VARIETIES.

As a few good varieties of distinct and brilliant colours are the most suitable for bedding purposes, the selection will be very short. At the same time it is necessary to remark that there are a very large number, in addition to those that will be enumerated, well entitled to a place in the flower garden.

SCARLET.—The very best of those of a medium growth is *Omega*, a neat compact grower, with well-formed flowers of the most brilliant hue. *Vesuvius* is also very good, but it is a few shades less brilliant. For small beds, or second rows, *Omega* is invaluable for its compact habit and floriferous character. *Warrior* resembles in general character the well-known Punch, while, like the latter, it must be planted in rather poor soil, and in large beds. Under these conditions it is second to none in effectiveness. *Jean Sisley* has flowers of the most intense hue, and is well adapted for medium-sized beds.

ORANGE SCARLET.—The varieties comprised in this section are a few shades lighter than those in the preceding paragraph, but they are of equal importance. *Scarlet Dwarf* is grand in rather rich soil. *Excellent* is rather stronger in growth and very effective. For larger beds, preference must be given to *Lucius*.

ROSY SCARLET.—*Crystal Palace Gem* and *Emily Morland* still remain at the head of this class. Both are compact in growth, and most abundant bloomers.

SALMON.—*Gloire de Corbeny* stands the weather better than any other of this class. It has, moreover, finely-formed flowers, which are produced in large trusses.

PINK.—At the head of these we must put *Beauty of Lee*, and next to it *Dante*. The last is the strongest grower, and well suited for large beds.

WHITE.—There are several good whites that do well in favourable seasons, but one upon which the greatest dependence can be placed is *Bull's Purity*, as it does not become discoloured.

NOSEGAYS.—From the nosegay section take *Charley Casbon*, unquestionably the finest bedding bright scarlet nosegay introduced. It is a most abundant bloomer, very dwarf, and altogether a first-class variety. *Star of Fire*: Orange scarlet; flowers very freely; habit very dwarf and compact. *Geant des Batailles*: Most abundant bloomer, in the style of *Stella*, but much darker. *Violet Hill Nosegay*: Dwarf, compact, fine purple salmon colour. *Douglas Pearson*: First-rate spreading habit, like the old Tom Thumb.

*Waltham Seedling*: Deep scarlet; a first-class bedder, far in advance of all the older varieties, such as *Stella* and *Cybister*. *Caractacus*: For large beds or borders one of the most showy; rosy purple. *Chief Justice*: A considerable improvement on *St. George*; splendiddark scarlet; showy bedder. *Countess of Rosslyn*: Delicate blush pink, very dwarf and free. *Lady Kirkland*: Rosy purple. *Lady Palmerston*: The highest purple colour in the class, and carries immense heads of blooms: very free and dwarf. *Harry Hieover*: Orange yellow; very dwarf, fine for edgings.

## SUCCULENT PLANTS AT THE HALE FARM NURSERIES, TOTTENHAM.

BY W. D. PRIOR, ESQ.



ONE of the most striking revolutions in the practice of modern horticulture is the use of succulents for decorative purposes, either in the garden or the house. This ought to be hailed with a certain degree of enthusiasm, because it not only enlarges the number of objects at the decorator's command by bringing into use a wide class of plants remarkable for contour irrespective of colour, but furnishes an interesting means for every lover of ornamental plants to gratify his taste under circumstances and conditions where the cultivation of mere flowers would be impossible. For instance, numerous curious and interesting tribes of succulents can be successfully grown in the densest towns, in a position baked up by the sun, or again utterly screened from its rays. Nor is their use less remarkable out of doors either in collections confined to themselves, amidst rockeries and other congenial spots, or in combination with the "bedders"—which will not be yet abolished in spite of the detractions of the eclectic school of weed growers—to which they lend a valuable assistance in the development of "pattern." Very many of this interesting tribe are entirely hardy, and consequently valuable as objects of permanent arrangement. We have seen edgings of "*Sempervivum californicum*"—outlines of geometric beds—which have stood the winter with little hurt, continued damp rather than frost being their greatest enemy.

Another advantage of this kind of plants is their accommodating nature as to soil. Almost anything light and free will agree with them, and they will, when established, endure a considerable amount of rough and irregular treatment on the point of water—no small consideration for many amateurs. Some of them also are not destitute of beauty in their flowering season. Cactuses—we purposely use the English plural—indeed are remarkable for gorgeous blossoms, even though they be short-lived. The *Epiphyllum* tribe also affords very brilliant flowers, forming most elegant table plants when in fine condition. Some of the *Echeverias* also throw up long spikes of red or orange coloured blossoms contrasting elegantly and chastely with

their glaucous grey or green stalks ; and the Sedums give very pretty red and yellow flowers ;—thus, in addition to “form,” the cultivators of this class of plants are not altogether destitute of that “colour” which is one of the greatest attractions to the florist’s eye.

The admirers of a house of succulents will find one of the most complete illustrations of what sorts should be grown at the Hale Farm Nurseries (Mr. T. S. Ware), at Tottenham. On the occasion of our visit the collection was in fine order, and, for the instruction of those who may feel desirous to experiment in this interesting branch of plant growing, we shall remark upon a few noteworthy varieties which may be easily adopted, and readily and cheaply obtained.

*The Agave and Aloe* are frequently confused, though the first belongs to the “Amaryllidaceæ,” the latter to the “Liliaceæ.” Both are useful when small, for such a house as we are considering ; out of doors they may be employed as auxillaries for the sub-tropical department, or as “tub plants,” or to decorate steps, lobbies, or lawns, where their stiff and stately contours will be seen to advantage. In the Agaves, *Americana fol. striata* and *fol. var.* are very interesting. *Aloe acuminata* and *lineata*, both with flowers orange red—there are many greenhouse sorts of these two tribes.

*Cereus* (Cactus) gives an abundant race of succulent objects, too well known to need special description. *Flagelliformis* is an interesting trailer or bracket plant. *Speciosissimus* is one of the most gorgeously flowering objects in the whole range of plant life. There is also the scarce “night flowering *Cereus*,” though not suited for ordinary purposes.

*Cotyledon*, a genus of greenhouse succulent shrubs (order, *Crasulaceæ*), often grotesque and peculiar. We marked out specially “*Arborescens*,” thick silver-grey foliage, like porcelain, and “*Bracteosa*” (red), used as a florist’s flower in France.

*Crassula*, type of the natural order *Crasulaceæ*, is a genus of succulent shrubs, having thick fleshy leaves and stems. The *Crassula* of the markets is tolerably well known. Some of the most noteworthy kinds are *Centaureoides*, good for vases and baskets. *Cultrata*, curious ; *Lycopodioides*, *Perfoliata*, *Rossularis*—white spikes of small flowers, very useful for cutting.

*Echeveria*. This genus is one of the most extensive and useful amongst modern succulent ornamentation ; indeed, with the “*Sempervivums*,” it forms the *pièce de resistance* of the “system.” *Echeveria metallica* is one of the most striking objects in the class, with its thick, fleshy, glaucous grey bronze leaves, like porcelain, especially useful in summer out-of-doors for centre points, and in winter for the table. *Lurida* is still darker in the leaf ; *E. punila* and *E. secunda*, with its variety, *S. glauca*, are largely employed as edgings. They are tolerably hardy, though not completely so out-of-doors. *Agavoides* is a rare variety. Others worthy of note are *Retusa*, with its varieties *Floribunda splendens*, and *Lutea gigantea*, *Rosea*, *Sanguinea*, and, indeed, almost all the tribe. They are propagated chiefly by offsets, though sometimes by seed, in which case differences are likely to arise.



*Echinocatus* and *Echinopsis*, once considered to belong to them, differing principally from the flowers in the former kind being produced from the top, in the latter from the sides of the leaves. The kinds of these employed may be chosen at the pleasure of the purchaser.

*Gasteria*.—There were half a dozen kinds of this. The leaves are tongue-shaped, and opposite each other; usually covered with spots like seed. *Verrucosa*, or “cats’ tongues,” is one of the most striking varieties, common enough in most mixed collections of greenhouse plants,

*Kleinia*, or *Cacalia*; family, *Senecionedæ* (groundsels).—*Kleinia neriifolia* is a kind of bush with fleshy stems. *Articulata*, the “candle plant.” *Repens* and *tomentosa* may be selected for a small collection.

*Mammillarias* are very interesting and of many kinds; to be chosen by inspection.

*Mesembryanthemum*.—This family embraces numerous examples, valuable for window cultivation and peculiarly easy to grow, requiring little water. *M. crystallinum* is the common “ice plant,” half-hardy annual. *Acinaciforme*, trained on hoops or frames, makes an interesting greenhouse ornament. *Cordifolium* fol. var. is a good bedder, or basket plant; for the latter use *Scandens*, *Caulescens*, *Umbellatum*; *Reptans* can also be taken; *Perfoliatum*, *Sessiflorum* album, and *Tigrinum* are worth adding to the list.

*Rocheas* are a small genus from the Cape, consisting of fleshy shrubs with opposite leaves; flowers red, crimson, or white during the summer months. *Falcata*, *Odorata*, and *Perfoliata* are the chief kinds in the house we are describing.

The *Sedum* (stonecrop) is a large class, of which most are adapted for rockwork. Take *S. acre*, *S. arboreum*, *S. carneum* fol. var., *S. villosum*, and especially *S. Sieboldii*, one of the most interesting trailers in cultivation, and an incomparable basket and table plant. This deserves a paper to itself.

*Sempervivum* (houseleek).—These are usually of a rosette-like shape, and with the *echeverias* constitute the subjects chiefly in use for succulent decoration. Many of these are capable of being grown into curious standards, or trained with arms turning up like the branches of a candelabrum. Others are close flat discs of green, such as *S. tabulæforme*, somewhat resembling a green dessert plate. Some, again, are glaucous, grey or green rosettes. This is another family of plants requiring a separate paper to do it justice. The space at command on this occasion will not permit more than allusion to the following names of varieties which ought to be found in a house of succulents.

*Aizoides*, do. fol. var. *Angustifolium*, do. fol. var. (*i.e.*, with striped leaves). *Atropurpureum*, *Balsamiferum*, useful for second and third rows in beds. *Bollii*, a bedding edge; *Canariense*, ditto; *Longiferum*, for basket or a standard. *Ciliare*, hardy, narrow leaves, for rocks. *Ciliatum*, a small standard tree. *Cuneatum*, a summer bedder. *Dodrantale*, large trusses. *Urbicum*, showy.

*Yuccas* should be added to the contents of a succulent house;

Quadricolor, when not too large, being one of the best decorative plants at our command. Filamentosa, which gives off threads from the edges of the leaves, is more curious than beautiful.

The soil for all these subjects is pretty much the same—a mixture of loam, leaf-mould, sand, or peat, and pounded bricks. They will mostly do indoors in cool greenhouse temperature, and endure a considerable degree of rough treatment, properties which render them valuable to beginners or amateurs. Space has restrained the consideration of so wide a subject to the narrowest dimensions, yet the varieties enumerated are sufficient to form a respectable commencement.

## THE PROPAGATION AND CULTIVATION OF BEDDING PLANTS.

BY JOHN WALSH.



**I**N well-managed gardens, the stock of bedding plants is just now beginning to demand especial attention. Plants grow fast in such weather as we have had during the past month, and presently the houses and pits will overflow, and something must be done with the stock. There are undoubtedly many places at present very short of stock where at bedding-out time they will not be badly off, but you may be sure that to make up for lost time there will be some sharp practice in propagating and pushing on. Two distinct subjects demand attention now—first, to what extent propagating may be carried on; and, secondly, what is to be done with the plants that are well established and growing away freely? Now if you know how to do it, you may from the present moment produce stock *ad libitum* of several important subjects, such as verbenas, lobelias, and heliotropiums, and by the middle or end of May the plants will be stout and strong, and quite fit for planting to produce a satisfactory display. Cuttings of geraniums put in now on a brisk heat will also make a good show during the summer, but they will not come into bloom so early as those propagated in the autumn. Calceolarias propagated now will also be late in flowering: hence it is that careful practitioners always prefer autumn cuttings of these plants, for they must have stout wood and matured branches before they can bloom as they ought to. Do not be led away by remembering that geraniums sometimes flower a week or two after they have made their first roots, because the flower-buds were formed, though not seen, when the cuttings were taken in the first instance, and as soon as they have made roots and begin to grow, those flower buds expand, and there is a display of flowers. But after that first display, the plants go out of bloom, and for some weeks grow vigorously, and then they bloom again, and, as one may say, in earnest. But autumn-struck cuttings have by this time made good wood, and are in a condition to bloom freely and continuously

after they have established themselves in the ground. At all the nurseries they are now propagating them by the thousand, and heat and moisture will soon make nice plants of them; but every autumn-struck geranium or calceolaria is, as I have already stated in the pages of the FLORAL WORLD, worth at least three plants from spring cuttings.

But this rule does not hold all through. For instance, fuchsias for conservatory and window decoration will do well from cuttings taken now, so those who have not yet propagated fuchsias have the season before them, but there must be no time lost. In the nurseries where they grow for market, the great batch of cuttings is usually put in early in March; the plants are kept close; they have, in fact, scarcely any air (fuchsias for decorative purposes do not need much); and the plants will be handsome little specimens in six-inch pots, fit for sale by the middle of June, when the annual mania for plant-buying is at its height. If the amateur has his plants in bloom by the beginning or middle of July, it will not be amiss, and cuttings put in this month will be then in perfection if managed properly.

So there is still good time to propagate dahlias, verbenas, petunias, ageratums, tropæolums, coleus, variegated alyssum, cerasium, mesembryanthemums, cupheas, lobelias, centaureas, heliotropes, and nierembergias. In fact, a large proportion of the nursery plants that will be sold in the middle of May are not struck until the middle of April, and so amateurs who grow their own have pretty nearly as good a chance as those who buy.

In the propagation of bedding plants in spring, the condition of the plants to be cut from, and the nature of the cuttings, are matters of the very first importance. Many beginners fail through taking old hard shoots of the previous year, which none but a professional propagator could strike. First then, put the plants in a genial temperature of about 60°, to get them into a nice free growth bristling with young shoots, and when these shoots are an inch and a half to two inches long remove them by cutting close under a joint. Take the leaves from that joint, and dibble them into pans filled with sandy soil and a layer of silver sand over the surface. Let them be placed close together and quite firm, pressing the sand between them with the finger. Never trifle with a batch of nice fresh cuttings. Give them heat enough—65° to 70°; sprinkle them frequently, and keep them close. Remember, the more heat, the more moisture, and *vice versa*. If any mildew appears, sprinkle flowers of sulphur over the cuttings, and raise the heat. They ought to be well rooted in ten days, but beginners may reckon on getting roots in a fortnight. Calceolarias may be rooted in a lower temperature than required by verbenas—in fact, they may be rooted without the aid of artificial heat, if kept close and damp. The most certain and easy way to get up a spring stock of calceolarias is to use frames or boxes which can be covered close with glass; place these on a mild hotbed, and over the dung spread a foot depth of cocoa-nut refuse, or clean moss or peat; water it well, and dibble the cuttings in firm, three inches apart all over. Cuttings of two

March.

joints will be enough, especially if from nice soft shoots of plants growing freely. They will every one root, and will require to be pretty freely aired from the time they begin to grow, and by planting-out time they will be stocky plants, touching each other all over the bed. It may, perhaps, appear a difficult task to strike cuttings in spring, but with a very little experience, the whole business will become as easy as any operation in the whole range of horticultural practice.

A nice sweet hotbed is the most suitable place for striking cuttings of all kinds, and will be found extremely useful for raising seeds of tender annuals and other plants which require a brisk heat to induce them to germinate quickly. Leaves and long stable manure, used in equal proportions, form excellent hotbeds. The leaves and manure should be mixed together and then thrown into a heap rather lightly. It will require turning over three or four times at intervals of two or three days to insure its becoming thoroughly sweetened. If the heap is found on turning it over to have become dry, sprinkle it rather liberally with water as the work proceeds so as to insure every portion being in a moderately moist condition.

The bed must be two or three feet larger each way than the frame, and in making it up spread out the materials regularly, and beat it firm with the fork. The frame can be put on at once, but no cuttings or plants must be put into it until two or three days. The lights must also be tilted a little to allow the noxious gases generated by the manure to escape. About the third day the surface of the bed may be covered with a layer of coal ashes, coarse sand, or coconut fibre refuse, in which to partly plunge the pots, as may be thought necessary, and as soon as the plunging material becomes warmed through the frame can be set to work. A thoroughly moist atmosphere is the most favourable for propagating purposes; but if too much steam arises from the bed it will be necessary to leave a little air on night and day, or a very large proportion of the cuttings will damp off. It will also be a good plan to leave a little air by tilting the lights at the back during the night when the bed is newly made, to allow the noxious exhalations from the manure to escape. In very cold weather, mats, straw hurdles, or even dry straw, should, if available, be placed round the bed, to prevent any waste of heat.

After the cuttings are struck, they should be gradually hardened off, and as soon as convenient afterwards be potted off singly, or planted out in a bed of soil made up in a cold frame, as may be considered the most suitable for each class. Some kinds do exceedingly well planted out in the manner here indicated, and can be transplanted without suffering any material check. Those which transplant most readily are lobelias, verbenas, calceolarias, and geraniums; tender plants, such as alternantheras and coleus, should be kept in the greenhouse until the beginning of May. The grand secret in having good beds of coleus is to strike the cuttings early, and to shift them on, so as to have them well established in five-inch pots by the time for planting them in the beds comes round.

Respecting the second point—What is to be done with plants



raised from cuttings struck in the autumn, which are now well established, and crowded together in the houses, and which are in the way? The answer is—Why, turn them out, and let them shift for themselves. All they want is a little protection, so that they do not get nipped by frost or deluged by rain, and *they must have that*. This in many places is a comparatively easy matter, for old frames, window-sashes, boards, old doors, mats, and hurdles may be turned to account. Suppose the frames in which cauliflowers have been kept all winter to be for the present unemployed, you have but to pack them full of geraniums and calceolarias, give water as needful, and put on the lights in the afternoon, and they will do better than remaining in the house any longer. The check will harden the wood, and prepare them for outdoor residence, and for a free habit of flowering. Calceolarias are so nearly hardy that, if pressed for room, they may be placed close together on a sheltered border, and have a mat thrown over them at night instead of glass. A still better method, both because it leaves the frames free for their proper work, and does not interfere with cucumber-growing, and because the degrees of protection and exposure can be more completely commanded by it, is to make a sufficient length of cradles to hold them. Here, with the aid of a few mats and cheap quartering, all your plants that have advanced sufficiently to be in four or six-inch pots will thrive admirably; they may enjoy warm showers and sunshine, be protected from east winds, frosts, and cold rains, and be made thoroughly hardy without distressing them in the least.

Among the many advantages of this proceeding, not the least is that it allows of the use of a brisk heat and a close atmosphere in houses where there is much young stuff; or if the collection is mixed, the removal of a large stock of bedders affords needful room for specimen plants that have been pushed into corners and out-of-the-way places, and perhaps for a general clear-up before making arrangements for the summer.

Seed may be sown now of *Amaranthus melancholicus*, and the beautiful willow-leaved amaranth (*Amaranthus salicifolius*), balsams, cockscombs, stocks, asters, and portulaccas, all of which will come in useful.

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RAISING ANNUALS.—All half-hardy Annuals, such as Asters, Stocks, and Zinnias, should not be raised in heat, because all the assistance they require is protection from morning frosts and keen winds. When raised in heat the plants become so weakened in constitution that much time is wasted in hardening them off. To secure a fine stock of plants, robust in growth, and hardy in constitution, select an open situation. Mark out the size of the Acme Frame, then lay two courses of bricks all round, and fill the space between with any light and moderately rich soil that can be most readily obtained. Proceed to sow the seed in drills made at a distance of six inches from each other across the bed. Cover lightly, and pat on the frame. Keep quite close until the young plants begin to peep through the soil, and then admit a little air, and increase it according to the progress the plants make. If the soil is at all moist, very little water will be required until the plants have attained a considerable size, beyond occasionally sprinkling the surface.—*Looker's Italy in England*.

March.

## THE PEACH AND NECTARINE.—No. II.

## PRUNING, PINCHING, AND TRAINING.



PRUNING peaches on walls is usually conducted in a rough and destructive manner. It is said that peach-trees "wear out," and perhaps they do, but a great many of them are pruned out of existence through the stubborn adherence of cultivators to the use of the knife, and the practice of "laying in" a 'superfluity of "reserve" shoots.

Let us first consider the case of established trees on a wall, for we shall meet with such in almost every garden. We will suppose them to have been unnailed for the winter, for in places where severe spring frosts occur, that is good practice. The question arises, when are they to be put in order, and nailed in for the season? The proper time for this will be when they are first pushing into bloom. The object of unnauling is to retard the flowering of the trees to the latest possible moment, in order to lessen the probability of injury by spring frosts. But when the trees insist on flowering, they must be allowed to have their own way, and must be nailed, and have as much pruning as they require by means of the knife.

It will be observed that the peach produces fruit only on shoots of the previous year, or on short spur-like shoots, each of which carries a cluster of flower-buds surrounding a wood-bud, which, instead of advancing as a shoot, remains stationary, presenting a cluster of leaves only. These spurs, however, are to be regarded as accidental productions, and, for the proper management of his trees, the cultivator may ignore their existence. The philosophy of peach pruning may be summed up in a few words. As we require a fresh supply of bearing shoots every year, the pruner must every year "lay in," that is, nail to the wall a sufficient number of the youngest shoots, or at least as many as he can obtain consistently with the age of the tree and the wall surface at his command. He must, of course, remove all the shoots that have borne fruit, except such as are wanted for the production of bearing shoots, and he must take care to thin the bearing wood to such an extent as to prevent crowding, so that every separate shoot shall be fully exposed to light and air.

Let us now look at our established trees. We find them covering the wall with some regularity, but in some places the shoots are a little crowded, and in others there are blanks that require to be filled up. It is necessary now to distinguish the two kinds of buds the young shoots carry, and there is nothing easier. The wood-buds are small and pointed: the fruit-buds are round, plump, and always larger than the wood-buds. Wherever we put the knife, whether to thin superfluous growth or any other purpose, we must cut to a wood-bud, so as to insure the production of a shoot in the place of the one removed, and prevent the pruned shoot from dying back to the next wood-bud, as it will if not cut to one. To thin out where the shoots are crowded is an easier matter than to fill in where there are

blanks. The simplest mode of procedure in this case is to select the best shoots near the blank space, and remove from them all their fruit-buds, and a considerable proportion of the wood-buds that point away from the blank, leaving all other wood-buds to grow without check in the first instance. The removal of the fruit will increase their vigour, and a little after-management will insure the result desired.

Peach-trees that are well managed require but little pruning in winter or spring, but for convenience we have supposed a case, and commenced with the time of nailing in. Henceforth we are to prune



BEFORE DISBUDDING.

properly, and the first step is to disbud the trees throughout, with the view of concentrating the energies of growth on shoots that will be of service, and which, consequently, will not have to be afterwards cut away. Amateurs are directed to begin disbudding as soon as the flowers shrivel up. This is a good time for disbudding peaches growing under glass, but too early for wall peaches, for the young fruit needs the shelter of the small spray. It is early enough to begin when the stoning process is over and the young shoots are more than an inch long. Then the work must be done systematically, but must not be all done at once, or the shock will be injurious. If it be borne in mind that while the shoots produced last year are carrying fruit this year, and will have to supply, while their fruits are maturing, new shoots to take their place for next year's crop, the system



AFTER DISBUDDING.

of summer pruning will be clearly understood, and patient practice will make the pruner perfect. As a rule, we may remove from the bearing shoot every wood-bud or side-shoot except the one at the base and the one at the extremity, as indicated by the subjoined diagram, which, to save trouble, we borrow from McEwen on the "Peach and Nectarine."

As we proceed, we shall of course treat of the pruning that remains for completion in autumn. For the present a seasonable lesson has been offered for the advantage of the beginner, which we trust will be found explicit, and therefore practical. S. H.

## THE MYROBALAN PLUM.



HIS interesting fruit is so little known amongst English pomologists, that we take advantage of Dr. Hooker's presentation of figures of its flowers and fruit in the "Botanical Magazine" (t. 934) to reproduce them in part for the information of our readers. The myrobalan plum is the *Prunus cerasifera* of botanists, the "cherry plum" of gardens, the "Cerisette" of the French, and the "Kirschpflaume" of the Germans. It is a vigorous-growing handsome tree, which, in this country flowers so early that its fruits are usually destroyed by



FLOWERS OF MYROBALAN PLUM.

frost, and hence is of more importance, generally speaking, for ornament than for use. In "Miller's Gardener's Dictionary," the cherry plum is described as "about the size of the ox-heart cherry, which this fruit so much resembles, as not to be distinguished therefrom at some distance." On the other hand, the myrobalan plum is described as quite distinct—"a middle-sized fruit, of round shape; the outside is a dark purple, powdered with a violet bloom." If Miller is right (and he is rarely wrong) we are presenting figures of two kinds of plum, and it is very interesting to note what Dr. Hooker says in his description as above cited—"I procured flowering specimens from the named collection in the Royal Horticultural



Society's gardens at Chiswick, which herewith accompany the figure of the fruit. It will be remarked, however, that whilst the lower (fruiting) specimen has solitary fruits, and consequently had solitary flowers in all probability, the flowers of the upper specimens are fascicled on abbreviated branches." We will venture to suggest, therefore, that the flowers represent one tree and the fruit another,



FRUIT OF MYROBALAN PLUM.

and there remains a point, therefore, to be cleared up on this subject. As the myrobalan plum has been employed on the Continent as a stock for the peach, it is a matter of some importance to clear up the mystery, and probably it might be accomplished this season at Chiswick.

S. H.

**COCOA-NUT GROVES.**—The peninsula of Manabique presents the aspect of one vast grove of cocoa palms, and affords the traveller an opportunity of seeing these trees in all their majestic beauty; rearing their tufted heads high into the air, while their roots are washed and often undermined by the rolling waves. No other tree ventures so near the water's edge, and dreary beyond description would this uninhabited coast appear were it not for these littoral plants. The air is filled with a sort of music, produced by the wind, while shaking to and fro the long, sharp-edged leaves; and the wailing, doleful sounds thus brought forth cannot fail to impress the lonely traveller with melancholy thoughts or soothe his restless spirit. Thousands of cocoa-nuts annually fall into the sea: these, like the apples falling by the roadside, belong to the poor, or to those who take the trouble of picking them up. The cocoa-nut crop of the whole peninsula is usually sold by the authorities to some trading ship-captain, or to the highest bidder.—*Our Ocean Highways.*

March.

## LITERARY NOTICES.



PERHAPS the most important recent contribution to the gardener's library is the neat octavo volume published by Messrs. Bradbury, Evans, and Co., London, and Messrs. Brooke and Co., Fairfield Nurseries, Manchester, under the title of "The Fairfield Orchids." This purports to be a descriptive Catalogue of the orchids grown in the Fairfield Nurseries, which number in species and varieties about four hundred; but it is much more than a catalogue, for the list is preceded by a series of original papers by Mrs. Leo Grindon. The first of these is on the "life-history" of Orchids, and is followed by papers on the structure of orchids, the cultivation of orchids, and a list of books in which coloured portraits of orchids may be found. Collectors and cultivators of these beautiful plants will value this well-planned and admirably-executed contribution to the literature of a fascinating pursuit.—Mr. Looker, of Kingston-on-Thames, has published, through Messrs. Houlston and Sons, a little book, entitled "Italy in England," the object of which is to explain the construction and uses of his ground vineries, protecting frames, and propagating boxes, all of which are of the greatest importance to amateur gardeners. Generally speaking, these contrivances consist of earthenware (tile material) and glass, but occasionally wood is employed, for the sake of neatness, but to such a small extent as in no way to interfere with the quality of *imperishability* which Mr. Looker has sought to combine with convenience and facility of removal. A shilling may be safely invested in this little book; for, in addition to the descriptions of apparatus, it contains much valuable advice on garden work.—"A Practical Treatise on the Cultivation of the Onion," by J. A. Taplin, of Banbury, will be interesting to persons who grow onions for competition, but for the production of a crop for ordinary purposes it affords no particularly desirable information.—Our agricultural readers may be glad to hear that Mr. Lock has published (by Spon, 48, Charing Cross) a treatise on the making of Superphosphate. It is copious, explicit, and freely illustrated.—From a heap of current periodicals we have selected for special mention, because of its distinctive merits, Mrs. Warren's "Treasury of Literature and Ladies' Treasury" (Bemrose and Sons). It is rich in variety, comprising fiction and fact, the fanciful and the practical, and contains a department devoted to the fashions, needlework, and domestic affairs, expressly for the ladies. The abundance and good quality of the illustrations add immensely to its attractiveness and value.—From a number of seed and plant catalogues we have selected three as particularly meritorious, and entitled to notice here, because they are sold as books, and make pretensions beyond the usual range of trade literature. "Sutton's Amateur's Guide" (Sutton and Sons, Reading) is an elegant work, which every amateur may consult with advantage. It represents, of course, the resources of the great Reading seed-stores, but it contains, for the advantage of the reader, original articles on the raising of flower-seeds, the work of the year in the kitchen garden, on the

rotation of crops, and on the cultivation of every vegetable crop that one might expect to find in an English kitchen garden. The next in our selection is "Hooper and Co.'s Gardening Guide" (Hooper and Co., Covent Garden, London, W.C.) This is a bulky work, extending to nearly two hundred pages. It contains a good descriptive and cultural list of kitchen garden seeds, and a series of selections of flower, tree, grass, fruit, and other seeds; and lists of bulbs, tubers, bedding plants, and horticultural elegancies. It abounds with illustrations which are useful, because truthful; but they have a rough, cheap appearance, which compels us to say they are scarcely attractive. Number three is placed last, solely because it refers to bedding plants and florists' flowers, which are not in such immediate request as seeds at this moment, although in another month the seeds will be pretty well all sown, and there will be a brisk trade doing in plants. Number three is "Cannell's Illustrated Floral Guide" (H. Cannell, Station Road Nursery, Woolwich, S.E.) This refers to garden flowers and bedding plants solely, and may be considered the most complete representative catalogue of its kind published. Mr. Cannell is not only a veteran florist, but a spirited trade cultivator, possessing large collections of the several flowers to which his attention is more particularly directed. In this "Floral Guide" will be found accurate and discriminative descriptions and selections of all kinds of soft-wooded bedding and decorative plants, interspersed with original articles on the cultivation of them, and on various styles of colouring the *parterre*. For the sum of 8d. any one may obtain the work through the post.

It is well known to our readers that we have collected and cultivated ivies with some degree of earnestness for many years past, and, as a matter of course, have accumulated some little knowledge respecting them. We have occasionally invited the readers of the FLORAL WORLD to give attention to these plants, because of their variety, beauty, and hardiness. With a view to enable the public to participate in the advantages of our collection, we consigned two hundred plants, comprising over fifty varieties, to Mr. C. Turner, of the Royal Nurseries, Slough, in the year 1869; and in the same year published in the FLORAL WORLD a new classification of the species and varieties of *Hedera*. Since then we have formed a new and larger collection, and have devoted much time, care, and consideration, to the correction of the classification referred to, and embodied the results in a volume entitled "The Ivy: a monograph, by Shirley Hibberd." The work will be published by Messrs. Goombridge and Sons, to whom communications may be made respecting it. Any connoisseurs in ivies who may honour the book with their attention, and discover in it errors, omissions, or other defects, will be rendering the author a service for which he will be ever grateful, if they will communicate with him on the subject.

GLADIOLA SPAWN.—Select the largest of the spawn, and plant them in boxes in rich light sandy soil, and start them near the glass in a greenhouse at once. In May (or earlier if weather favourable) plant them out in rich sandy soil, but avoid the use of rank manure. The greater part of them will flower ere the season is out. Any you want to throw into spawn, nip the flower spike out as soon as it appears, and at the same time slightly disturb the roots by gently lifting with a fork; then leave them till the usual time for taking up.

## GARDEN GUIDE FOR MARCH.

**KITCHEN GARDEN.**—Make new plantations of artichokes, rhubarb, horseradish, and chives. Plant main crops of potatoes. Pot a few roots of mint, and put in heat for salads and sauces. Continue to force rhubarb, seakale, and asparagus. Get cucumber and melon plants forward. Top-dress asparagus and seakale beds. Sow main crops of peas, broad beans, savoy, parsnips, onions, cardoons, and spinach. Sow also small patches of cabbage-lettuce, radish, cauliflower, turnip, broccoli, leek, and parsley; and in gentle heat, celery, lettuce, and cauliflower.

*Dwarf French Beans.*—These vegetables may be considered amongst the most valuable for small gardens. They take up very little room, require no stakes, and are wonderfully productive. They require a warm, sunny situation and a well-tilled soil, and a moderate space for their development—that is to say, they should be at least six inches apart in the rows, and the rows ought to be two feet apart. In arranging the planting of the kitchen garden space should be left for a moderate breadth of dwarf beans, hence the reasons for now directing attention to them. They should not be sown until May. They do well on shallow soils and in dry seasons, although they will not be so productive as when grown under more favourable conditions.

**FRUIT GARDEN.**—Cuttings of bush fruits may still be put in. Grafting should not be delayed, as the sap is now rising. Pruning and cleaning ought to have been completed long ago. If not so, let your motto be, "Better late than never." Burn all the prunings and clippings of trees, hedges, etc., and use the ashes as a top-dressing for quarters of bush fruits.

*Protecting Wall Trees.*—Tanned netting, which can be purchased at about a penny per square yard, is better for protecting the bloom of peach, nectarine, and apricot trees from spring frost than tiffany and other expensive coverings, which, if not taken off and put on as required do more harm than good. Hang the nettings from the coping of the wall, and keep it at a distance of about twelve inches from the trees by means of forked sticks.

**FLOWER GARDEN.**—Sow hardy annuals in the borders, and a pinch of each in pans and pots. Strike chrysanthemums in heat for planting out in May. Get dahlias to work and take cuttings. Give plenty of air to auriculas, pansies, carnations, etc., and water freely during bright weather. Give weak liquid manure once a week. A mixture of guano and wood ashes is a good dressing for beds of roses that have not been mulched. Lay it on two inches thick. Plant *Dielytra spectabilis* from pots in rich deep loam. Finish planting roses.

*Auriculas from Seed.*—Raising seedling auriculas is a very interesting operation, especially to those who are unable to incur the expense of a collection of named varieties to get up a stock. Sow the seed at once in pans filled with a light sandy compost, and place them in a propagating pit or other structure, the temperature of



which is about 70°. Harden off in a gradual manner as soon as the plants have acquired moderate strength. When this is accomplished pot them off into three-inch pots at the rate of six to each pot, putting them round the side. In August pot them off singly, if strong enough, into small 60's. Use a compost consisting of turfy loam two parts, and leaf-mould and well-decayed manure in equal proportions one part; to this add a liberal quantity of sand.

**GREENHOUSE AND STOVE.**—Plants in bloom must be kept cool to prolong their beauty. Give liquid manure, clear and weak, to all plants swelling their bloom buds. Get fuchsias into growth by a gentle bottom-heat, and take cuttings for summer and autumn flowering. Start gesneras, gloxinias, and achimenes, if not done already. Continue to propagate bedding stock, and use a brisk heat to everything intended to be propagated. Pines swelling their fruit should have plenty of manure water, and a bottom-heat of 85° or 90°. Vines and peaches in bloom must not be syringed. Thin the bunches of vines that have set fruit, and use the syringe freely. Sow tender annuals, and place over a propagating tank, or otherwise start in a moderate heat. Greenhouse, 50° night, 60° to 65° day.

## HORTICULTURAL AFFAIRS.

**ROYAL HORTICULTURAL SOCIETY: FLORAL COMMITTEE, FEBRUARY 14.**—The Exhibition held at South Kensington on the above-mentioned date was one of the most attractive winter meetings ever held under the auspices of the Society. Orchids and miscellaneous plants were shown largely and in fine condition. The display of Cyclamens and Primulas, to which the leading growers, such as Mr. Goddard, gardener to H. Little, Esq., Mr. James and Mr. Wiggins, of Isleworth, and Mr. Clarke, of Twickenham, contributed, was simply magnificent. The first prize for six Chinese Primulas was awarded to Mr. Goddard, who presented grand specimens remarkable for the high quality of the flowers. Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth, Messrs. Dobson and Son, Isleworth, and Mr. Markes, gardener to R. Fowler, Esq., Montrose House, Peterborough, also exhibited fine collections. Prominent amongst the collection of Orchids was that exhibited by Mr. Denning, gardener to Lord Londesborough, this included a magnificent specimen of *Lælia anceps*, and good specimens of *Pilumnus fragans*, *Cattleya Trianae*, *Cœlogyne cristata*, *Phalanopsis grandiflora*, and *Odontoglossum nebulosum*. The collections of Orchids exhibited by Messrs J. Veitch and Sons, King's Road, Chelsea, Mr. B. S. Williams, Upper Holloway, and Messrs. Rolisson and Sons, Tooting, were also especially good; comprising grand specimens of *Dendrobium Hilli*, *D. Wardiana*, *D. nobile*, *Cœlogyne cristata*, *Lycaste Skinneri*, *Dendrochium filiforme*, *Odontoglossum pulchellum*, *O. crispum*, *Cypripedium villosum*, *Oncidium fuscum*, *Vanda suavis*, *Angræcum eburneum*, and *Cattleya Trianae*. A fine group of hardy spring-flowering plants and succulents was contributed by Mr. T. Ware, Hale Farm Nurseries, Tottenham. The group of spring flowers included, amongst other choice things, a basket of the lovely *Iris reticulata*, which is perhaps one of the most beautiful hardy spring-flowering plants in cultivation. The collection of succulents included many unique specimens and was fairly representative of Mr. Ware's immense collection of this class of plants. First-class Certificates were awarded to *Kentia australis*, a very beautiful palm, with elegant deep green pinnate fronds, and to *Veitchia Canterburyana*, very similar in general character to the preceding, but quite distinct and most graceful in appearance, exhibited by Messrs. Veitch and Sons; *Davallia Tyermanni*, a most elegant, compact-growing species, from Mr. B. S. Williams; *Agave Gibbsii*, and *A. Morgani*, sent by Mr. Croucher, gardener to J. Peacock, Esq., Sudbury House, Hammersmith; and to *Thujopsis*

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*borealis aurea-variegata*; a beautiful golden variegated form of this well-known Conifer, exhibited by Mr. Noble, Sunningdale. A second-class Certificate was conferred upon a good variety of *Odontoglossum odoratum*, exhibited by Mr. W. Bull.

THE ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM SHOW.—Messrs. Sutton and Sons, Royal Berks Seed Establishment, Reading, have announced their intention to offer at the Royal Horticultural Meeting at Birmingham, in June next, £5 5s. for the best Six Dishes of Peas, half peck of each sort, to include Dr. Maclean's Best of All, and £2 2s. for the second best ditto. Also £5 5s. for the best Three braces of Cucumbers, including Marquis of Lorne, and £2 2s. for the second best ditto. The competition is to be confined to noblemen's and gentlemen's gardeners only. Messrs. J. C. Wheeler and Son, seed-growers, of Gloucester and London, have placed at the disposal of the Local Committee the sum of £10 10s., to be offered "for the best collection of plants in pots, in bloom, bearing Sweet-scented flowers, such as Roses, Lilies, Honeysuckles, Stocks, Jasmines, Mignonette, Violets, Carnations, Pinks, etc., ornamentally grouped." The Birmingham Local Committee, in connection with the Royal Horticultural Society's visit in June next, intend that there shall be a congress during the show week. The arrangements will, we believe, take something like this form: on Tuesday, June 25, there will be a public dinner; on the three following days, Wednesday, Thursday, and Friday, a luncheon at a convenient hour, and at a very moderate figure; and afterwards, each day, according to a programme to be issued in due course, papers will be read.

GRAFTING *BIGNONIA RADICANS* ON THE *CATALPA*.—A correspondent of the *Horticulteur Français* announces the successful grafting of the *Bignonia radicans* on the *Catalpa*. Some of the branches were headed back, and the *Bignonia* scions inserted by cleft-grafting. The result was that from the midst of the luxuriant foliage of the *Catalpa* emerged numerous flowering branches of the *Bignonia*.

DESTROYING WIREWORM.—I have had some experience on three-quarters of an acre of garden ground made from old turf land, and I feel sure the remedy which I adopted will answer the end on any land. The first and second years I was dreadfully pestered with wireworm; my potatoes, turnips, carrots, and other roots were pierced through and through with this pest. A thought struck me that the application of spent gas lime would settle my enemies; so I sent for two cartloads from the Denby Gas Works, and I had it mixed with six times as much good soil and manure, equal quantities; the manure was chiefly sawdust upon which pigs had run. This was spread on the ground in November, and dug in a spade deep; then in the spring I put early and other potatoes and the general crop, with some light stable manure. I had excellent crops that year and afterwards, but not a single wireworm could I detect after that dressing. It is very important not to overdose with the gas lime; dilute it well with soil and manure, and it will destroy grubs as well.—*T. M. in "Field."*

INFLUENCE OF GREEN LIGHT ON THE SENSITIVE PLANT.—An interesting experiment in the effects of green light upon plant growth is reported in the *Chemical News*. In order to test the effect of green light on the sensitiveness of the *Mimosa*, M. Bert placed several plants under bell-glasses of different coloured glass, set in a warm greenhouse. At the end of a few hours a difference was already apparent: those subjected to green, yellow, or red light had the petioles erect and the leaflets expanded; the blue and the violet, on the other hand, had the petioles almost horizontal, and the leaflets hanging down. In a week those placed beneath blackened glass were already less sensitive; in twelve days they were dead or dying. From that time the green ones were entirely insensitive, and in four days more were dead. At this time the plants under the other glasses were perfectly healthy and sensitive, but there was a great inequality of development among them. The white had made great progress, the red less, the yellow a little less still; the violet and the blue did not appear to have grown at all. After sixteen days the vigorous plants from the uncoloured bell-glass were moved to the green; in eight days they had become less sensitive, in two more the sensitiveness had almost entirely disappeared, and in another week they were all dead. Green rays have no greater influence on vegetation than absence of light; and M. Bert believes that the sensitive plant exhibits only the same phenomena as all plants which are coloured green, but to an excessive degree.

## TO CORRESPONDENTS.

**NEWLY PLANTED ROSES.**—*Amateur.*—You need not fear injury to your standards. By mulching the roots with good fat manure you protect them from drought, and prepare them to produce fine flowers. For covering beds filled with bulbs, leaf-mould is certainly far preferable to ashes.

**MAKING AND USING TOBACCO WATER.**—*Anxious Inquirer.*—The most effectual way to use tobacco is as follows. Procure the strongest shag, and make an infusion by pouring upon it boiling water. The whole quantity of water required may be applied in the first instance, or a portion only, adding the remainder cold some time afterwards. A safe rule for plants of every kind is to allow half a gallon of water to every ounce of tobacco. The tobacco may be infused a second time, and the liquid added to the first; the second infusion should be not more than a quart of water to every ounce of tobacco. Plants with leathery leaves will bear stronger doses than plants with thin papery leaves, and the best time to use the liquid is in the afternoon or evening. Small plants, such as fairy roses, etc., are best cleansed of fly by dipping them. Have ready a vessel large enough for the purpose filled with tobacco-water. Take hold of the pot with one hand, and place the fingers of the other over the soil in just the same manner as if about to turn the plant out of the pot. In this way dip the plant head downwards into the liquid, and hold it there a few seconds. If there are many to be operated on, it would be well to have the liquid in a trough, and some pieces of wood laid across; on these pieces of wood the edges of the pots could rest, and beginning at one end the plants could be turned over with their heads in the liquid, and remain so till the trough was filled, which, of course, would occupy but a brief space of time. When taken out of the bath, the plants should be laid on their sides to drain, and then be well syringed with pure soft water. This method of procedure entirely prevents the absorption by the soil in the pots of any of the tobacco-water, which would injure the roots, and it moreover insures the complete wetting of the under-sides of the leaves. The liquid should always, if possible, be used tepid, and it is then more effectual than when used quite cold. Indeed, it may be used as hot as the hand will bear it comfortably without injury to the plants. The tobacco liquor sold by the tobacconists varies so much in quality that no rule can be given as to the degree to which it may be diluted. When thoroughly good, it may be augmented to six times its bulk by the addition of water. Tobacco itself is certainly preferable to the tobacco liquor. As to the relative value of the various aphid destroyers that are from time to time offered to the public, there can be no doubt that they differ only in small degrees. Gishurst's Compound is good, but it does not drive tobacco out of the hands of experienced cultivators. It suits folks who have no time, or who do not like the trouble and mess of preparing tobacco-water, but we know of nothing at present which can equal tobacco unless it be *pure water*. Let the cultivator notice one of the most distinct teachings of nature, that in the majority of cases moisture is death to insects. But art may add to the teachings of nature, and it is a fact of some importance that *hot water* will destroy aphids instantly, without injury to the plant if not too hot. What is the maximum temperature at which it may be used cannot now be stated with exactness, but it may be used as hot as 150° Fahr. without any fear whatever, excepting upon very tender plants.

**COOL CONSERVATORY CLIMBERS.**—*Miss Robinson.*—The following are splendid, easily grown, and cheap:—*Bignonia capreolata* (sunny position), *Lapageria rosea*, *Passiflora Campbellii* and *cærulea*, *Smilax maculata*, *Rhynchospermum jasminoides*, *Tacsonia van Volxemii*, *Zichya coccinea*.

**TWELVE USEFUL PLANTS FOR SMALL GREENHOUSE.**—*Young Gardener.*—It is very difficult to select for you, but you cannot have better plants than the following, whether they suit your taste or not:—*Acacia grandis*, *Acacia lophantha*, *Acrophyllum venosum*, *Aphelaxis macrantha purpurea*, *Beaufortia splendens*, *Chorozema varium nanum*, *Cytisus racemosus*, *Leschenaultia formosa*, *Plumbago capensis*, *Rhynchospermum jasminoides*, *Statice profusa*, *Vallota purpurea*.

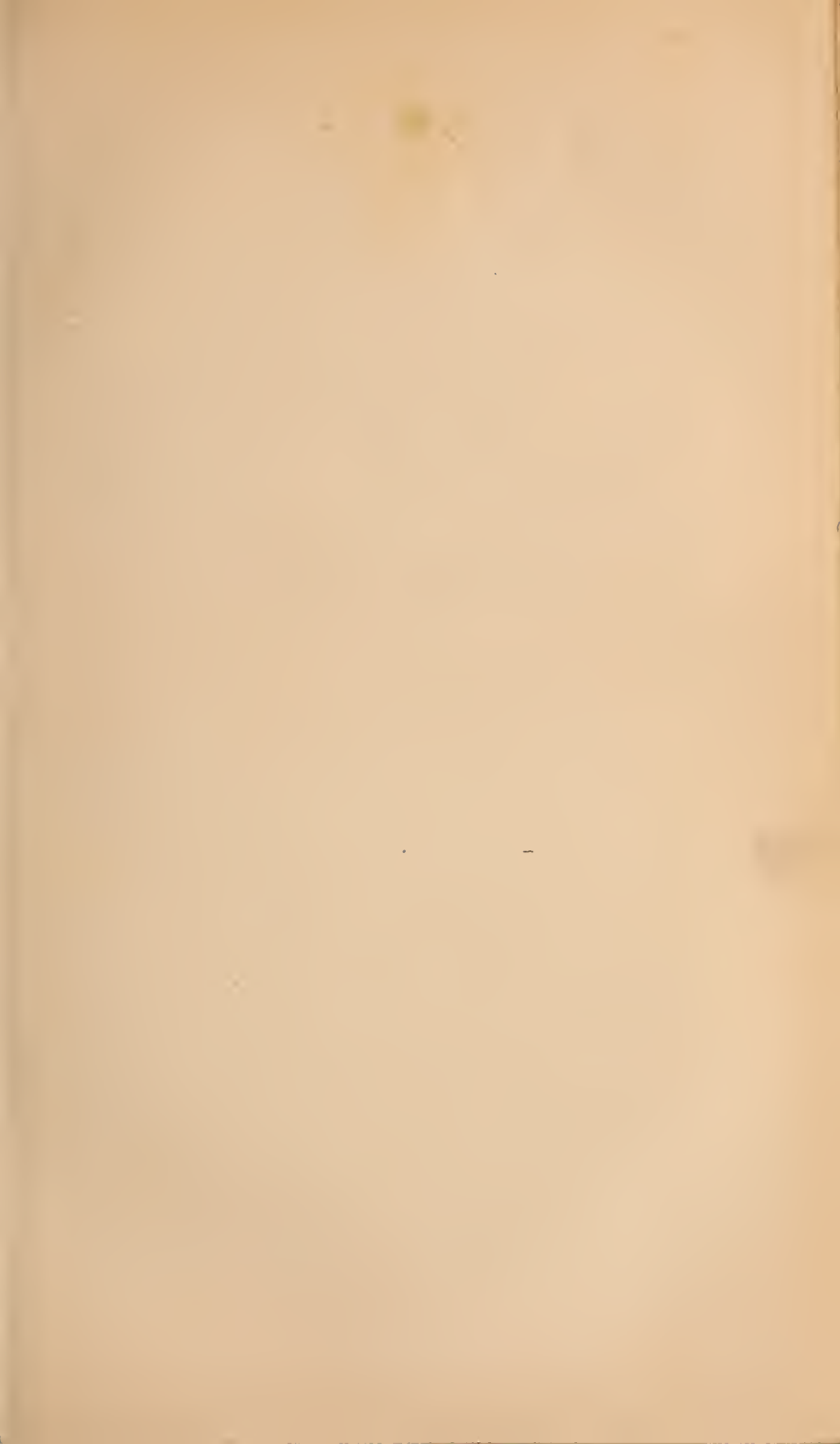
**MANURE FOR VEGETABLES AND STRAWBERRIES.**—*A New Subscriber.*—The best manure for potatoes is rotten dung that has not had its goodness washed away by long exposure to the weather. The next best is superphosphate of lime and common salt, 4 cwt. of each mixed together per acre. The next best manure is crude potash, March.

at the rate of 5 cwt. per acre. Your cucumber bed is deep enough, and, indeed, might be six to twelve inches shallower. A bottom-heat averaging 70° is best, but if it runs up to 80° no harm will be done, if the general management is right. If you can get Master's Prolific, or Improved Sion House, you will do better than with varieties that produce large fruit. If you prefer large fruit, then sow Turner's Blue Gown. Useful varieties of celery for you are Sandringham White, Read's Matchless Red, Williams's Matchless and Incomparable Dwarf Whites. We know of no strawberry that really surpasses Black Prince for earliness. A variety known under the several names of Léon de St. Laumer, Duchesse de Treviso, and Vicomtesse Hericart de Thury, should have a place in every garden where abundant production is a matter of any importance, as it is the most fruitful strawberry known.

**MAKING AND MANAGING A HOTBED.**—*F.R.H.*—To secure a safe and constant heat, the dung should be first well shaken out, so as to allow the atmosphere to penetrate every portion of it. After two or three days it should be turned over and over again, and a fresh heap formed in a new place, every lump being broken by the fork in the process. If dry, it must be sprinkled with water at each removal, and, if very short and pasty, a moderate admixture of dry litter, such as fern, straw, turf, etc., will give it more substance, for the duration of the heat depends on the quantity of undecomposed fibre in the heap. When it has acquired a moderate heat all over, mark out the place for it, a foot larger than the frame all round, drive in short stakes at the four corners, and shake the dung lightly within the space, just putting it together with the fork as you go on. It should be from three to five feet high, and the larger the bulk the longer will the heat continue. Put the frame on, so that the dung projects equally all round it, and tilt up the light to let off the foul gases. In a couple of days you may spread four inches of good loam all over it, and you may then sow what you please—cucumbers, melons, marrows, capsicums, tomatoes, tender annuals, etc., in pots. If you purpose growing cucumbers in the frame, you can make room for them as other things are removed; and the way to plant them is to turn out the ball under the centre of a light, and then heap loam all round it so as to make a hillock, the outer edge of which must be heaped up above the ball, so that the plant will stand in a basin at the top of a mound; water will then soak to the roots instead of running off down the sides. It is better, if you can do it, to make up a second bed to receive the plants from the first, when they are ready for it, and so on, working from frame to frame, and the first beds, when half spent, will be found quite warm enough for things that require only a little heat.

**SHOWY AND CHEAP FLOWERS FOR A BORDER.**—*Anxious Inquirer.*—Do not attempt to grow many annuals in your borders; but such as you do have sow in large clumps, and thin the clumps so that the plants stand at least four inches part; strong-growing kinds six or eight inches. For yellow, have *Platystemon Californicum*, *Eschscholtzia Californica*, and *Crocea*; *Lupinus lutea*, French and African Marigolds, *Bartonia aurea*, *Ænothera Drummondii*, annual golden *Chrysanthemum*, *Cheiranthus Marshallii*.—Red and Crimson: *Love-lies-bleeding*, *Tropæolum Tom Thumb*, *Saponaria Calabrica*, *Salpiglossis*, *Calandrina discolor*, *Jacobæa*, *Malope grandiflora*, *Collinsia atropurpurea*, *Clarkia pulchella*.—Blue and lilac: *Nemophila insignis*, *Leptosiphon androsaceum*, Purple Candytuft, *Convolvulus minor*, *Eutoca viscida*, *Lupinus nanus*, *Nolana atriplicifolia*, Sweet Sultan. —White: *Clarkia alba*, White Candytuft, *Helichrysum macranthum*. Asters of all colours except yellow. A few other good things for your purpose, and better things than any annuals, are White Alyssum, double Feverfew, Lupins of all sorts, *Dielytra spectabilis*, *Tritoma uvaria*, double Canterbury-bells, scarlet *Lychnis*, Stocks in variety, Foxgloves in variety, *Delphinium formosum*, Hollyhocks for clumping, *Gillardias*, *Iberis*, *Lilium lancifolium* in variety. Choose from the above according to the number of sorts you need—all are good and easily obtained; and prefer to make large patches of few sorts in preference to small patches of many sorts. For your beds, Tom Thumb *Tropæolum* and *Convolvulus minor* will be first-rate in masses. White Candytuft or Feverfew will also make good masses of white. Another bed filled with yellow pansies would also please you. Sandbeck Gem and Cloth of Gold are two fine varieties, and obtainable at a cheap rate. *Viola lutea grandiflora* is also first-rate on cool soil.







ALPINE AURICULA.—QUEEN VICTORIA.

## ALPINE AURICULAS.

BY J. JAMES,

Head Gardener, Redlees, Isleworth, W.

*(With Coloured Illustration of Turner's Queen Victoria.)*

ALPINE AURICULAS are so thoroughly beautiful, quite surpassing in effectiveness the best of the show varieties, and so easily cultivated, that they well deserve the instant attention of those amateurs who are partial to auriculas, but who do not possess the skill to grow the latter in a satisfactory manner. They, however, had nothing until quite recently, but their showy colours, to recommend them, but now we have a race of varieties possessing flowers of the largest size, finest form, and most exquisite finish, in combination with colours of the most beautiful and attractive character. For these we have to thank Mr. Charles Turner, of the Royal Nurseries, Slough, the raiser of the magnificent variety here figured, who, for many years past, has paid the most unremitting attention to them, and has succeeded in raising a very considerable number of really first-rate exhibition flowers. In fact, so far as I am aware, all the alpine varieties we have that are worth growing have been raised in the Slough Nurseries, although we may soon expect to hear of seedlings being raised in other quarters, now that they have acquired such a large share of popularity amongst both cultivators and the general public.

At present the number of varieties in cultivation is not large, but, considering the very large number of fine varieties in Mr. Turner's hands which have not yet been catalogued, we may reasonably expect a very large accession to the list this spring. The varieties I should recommend a young beginner to take in hand first are, *Black Prince*, *Brilliant*, *Defiance*, *Dazzle*, *Diana*, *Edwin*, *John Leech*, *Jessie*, *King of Crimson*s, *Landseer*, *Marion*, *Minnie*, *Nero*, *Novelty*, *Polyphemus*, *Sovereign*, *Sparkler*, and *Wonderful*, which represent all the colours we at present have. After sufficient knowledge has been acquired to enable the cultivator to grow them successfully, the new varieties may, as fast as they make their appearance, be added to the collection, according to the means at disposal. But it would be far from wise to commence with the newest varieties, because failures in auricula growing are not altogether unknown amongst those who have been working at them for several years. It is, however, proper to remark that failures are less likely to occur with the alpiners than with the show varieties.

The alpiners are readily distinguished from the show kinds by the showy colours of the flowers, and the entire absence of all mealiness and farina from the leaves and flower-stems, and the advantages they possess consist in the facility with which they can be propagated, and the ease with which they can be grown. They produce

offsets very freely, and are so hardy in constitution that they can be grown very successfully in the open border; but, of course, when intended for exhibition, they must be grown in pots, and have the protection of a frame. Even when it is not intended to exhibit them, they must not be planted out if they are required in the highest perfection, as the rough winds, heavy showers, and brilliant outbursts of sunshine, which we have in rapid succession, when they are in bloom, frequently spoil the flowers before they are fully expanded.

The compost used here for many years past with the greatest success is prepared by mixing together turfy loam, which has been lying in a heap for at least six months, three parts, decayed cow-dung one part, leaf-mould one part, sufficient silver-sand to make it gritty, and to every barrowful of the compost a peck of night-soil which has been lying by seven or eight years. The loam is chopped up rather fine, but all the fibrous matter is carefully preserved, and the leaf-mould is passed through a rather coarse sieve to clear it of pieces of stick and bark that may have found their way into it. The pots must be clean and well drained, and should not exceed five inches in diameter, as that is quite large enough for a full-sized specimen. The soil should be pressed moderately firm, and the roots spread out regularly, and not pressed to one side of the pot, as is done when they are potted in a careless manner. In February, they should be top-dressed with a compost consisting of equal parts loam, cow-dung, and night-soil.

They should be repotted annually in the middle of July, and in doing this turn the plants out of the pots, and shake all the soil from the roots, and repot them in a fresh compost, using, of course, thoroughly clean pots. When the plants are out of the pots, shorten the long fleshy roots slightly, but preserve the small fibrous roots from injury. Although they can be repotted as late as the middle of August, and will do well, it is much better to repot in the month here mentioned, as it gives them more time for becoming established before the winter sets in.

Propagating existing varieties is by means of offsets, which should be taken off when the old plants receive their annual repotting. The best way for detaching them is to slip them off without injuring the main stem, because, if the latter is injured, the damp will settle in the wound, and, in all probability, the plant will perish in consequence. Only those offsets that are rooted should be taken off for the purpose of increasing the stock, but, unless the smaller ones are likely to be required the following season for propagating purposes, they should be rubbed off, for they impoverish the plants, and one good truss is preferable to several small ones, which will be produced if the offsets are allowed to remain. Pot the offsets in three-inch pots, and manage them in the same way as the old plants, after they have received their annual repotting.

Watering must be done in a careful manner at all seasons, but more especially is caution necessary during the winter, and immediately the stock has been repotted in the summer. Soft water should be used, and it ought only to be applied in sufficient quan-



tities in the winter to keep the soil just moist. When growing freely in the summer, more plentiful supplies will be required, but it must not be overdone, or the soil will soon become saturated, and the plants perish.

Green-fly frequently attacks the foliage, but it is not difficult to keep it in subjection, if taken in time. Fumigating would, of course, quickly dispose of them, but as the foliage suffers severely from an overdose of tobacco-smoke, it is safer to immerse the plants bottom upwards in a weak mixture of soft-soap and tobacco-water. A dry morning should be selected for immersing them, and every drop of the liquid must be drained from the foliage before the plants are set back in their usual places. Next in importance to keeping the plants free from insects is removing all decaying foliage directly it shows signs of decay, because when the leaves remain until they are quite dead, the stems will occasionally rot at the point where the leaf-stalk was attached to them.

From the time they come into flower until the beginning of October, keep them in a frame placed on the north side of a wall, where they will be secure from the sun, but have the advantage of a full exposure to the light. The frame must be ventilated at all times, and, excepting when the plants are in bloom or in wet weather, the lights must be drawn off. During the winter they should be placed in a frame facing the south, and air admitted freely in favourable weather, by tilting the lights at the back and front, unless the frames are provided with ventilators fixed in the wall just below the wood-work.

Amateurs and others with sufficient time on their hands would find raising seedlings a very interesting, and probably profitable, amusement; and for those who wish to commence, I will offer a few remarks on saving and sowing seed. When the plants are in bloom, fertilize the flowers from which it is desired to save seed with pollen from others equally good, or presenting some distinctive features. It is not desirable to enter at length into the principles which should guide the cultivator; but it may be stated, as a rule, that varieties having flowers of the finest form should be selected for seed-bearing, and those with flowers of the richest colour for furnishing the pollen.

Newly-gathered seed vegetates more readily than that which has been kept in the drawer for a considerable time; therefore, it should be sown within a fortnight or three weeks of its being gathered. The seed-pans should be well drained, and be filled with a mixture of loam, leaf-mould, and sand. The surface must be perfectly level, to prevent one portion of the seed being buried deeper than the other, and the soil should be watered before the seed is sown, to render heavy waterings unnecessary for a considerable period afterwards. Sow thin, to admit of the plants attaining a considerable size before they are potted off, and cover very lightly either with fine soil or silver-sand. After the seed is sown and covered, sprinkle it lightly with tepid water, cover with a sheet of glass, and place in a warm corner of the greenhouse, or wherever the seed can have the assistance of a genial temperature. With moderately careful attention,

the greater portion of the seed will soon germinate, and as soon as the plants are sufficiently hardened by gradually tilting the glass, and finally removing it, the pans should be removed to a cold frame, when, of course, the young plants must be protected from the sun and cold draughts for a short time. In pricking them off into other pans, lift the strongest out a few at a time with a thin piece of wood, or the handle of a budding-knife, to avoid disturbing those not strong enough to be disturbed. The pans used for pricking off should be filled with a compost similar to that employed for the seed-pans, but in a rather rougher state. At this stage they will make rapid progress, and will be ready for potting off singly in about a month or six weeks after they are put in the pans.

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### VEGETABLE MARROWS.



**I**N the very excellent paper contributed by Mr. Cole to the February number of the *FLORAL WORLD*, the vegetable marrow was briefly alluded to. I quite agree with him respecting the desirability of sowing the seed in the bed where the plants are to be grown, and as the system I have adopted differs somewhat from that usually practised, I hope you will spare me a little space for giving a brief outline of it. In the first place, according to the customary plan, the seed is invariably sown in heat, and as we travel about at this season of the year amongst amateur friends, lamentations are heard because they have no hotbeds in which to raise seed of vegetable marrows, tomatoes, and kindred subjects. Now, with respect to the first-named, I have no hesitation in saying that neither hotbeds nor cold frames are required, and that the plants will be much stronger, and come into bearing nearly, or quite, as soon as those sown under glass, and managed in the most careful manner. This I have proved over and over again, and a friend of mine, who grows seed for the market, always sows out of doors; and surely if the system answers the purpose of those who require ripe fruit, it must answer the purpose of amateurs who cut the fruit whilst green.

After the beds are made, the position for each plant is indicated with a short stake, and about the middle of April three seeds are sown near each stake. Only one plant is allowed to remain, but as accidents will sometimes happen to them whilst in a young state, it is best to have two or three, as all that are not required can be easily destroyed, as soon as it may appear necessary. A sharp look-out should be kept for the appearance of the plants above the surface, and, as soon as they can be seen, some means of protection resorted to. For this purpose, there is nothing to equal Rendle's Circular Plant Protectors, and Looker's Plant Covers, but I manage very well by knocking the bottom out of a few six-inch flower-pots, and then turn them bottom upwards over the plants, and lay a small square of glass over the opening in bad weather. Protection from frost is all that they require, and at other times they should be

freely exposed to the air to keep them as stocky as possible. The period for the removal of the protection depends, of course, entirely upon the weather, but after the third week in May, very little danger from frost need be apprehended. To place them under the best possible conditions for receiving the fullest advantages from the heat of the sun, the beds should be raised from twelve to twenty-four inches above the general level, and should be, moreover, quite flat upon the surface. When this is the case, they can be supplied with water in dry weather, but when stuck upon the little mounds one frequently meets with in small gardens, it is utterly impossible to do more than moisten the surface of the soil, because the water will run off as fast as it is poured on. Raised beds can be easily made by digging a trench all round the space marked out, and using the soil taken from it to raise the bed. The practice of putting a layer of manure underneath the soil in the manner of a hotbed is not objectionable, but it is unnecessary, and I content myself with mixing a liberal dressing of manure with the soil.

I used to grow the *Custard Marrow* and *Moore's Vegetable Cream*, both of which are very good, but they are now discarded in favour of *Hibberd's Prolific*, a rather small, but wonderfully fruitful and delicately-flavoured variety, sent out by Messrs. Barr and Sugden, of 12, King Street, Covent Garden. The fruit should, as the introducers recommend, be gathered when about the size of a goose's egg, and be cooked whole. Large marrows are, in my opinion, very objectionable.

AN AMATEUR.

## WINTER VEGETABLES.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



ALTHOUGH summer vegetables should have the preference in gardens of a small size, those in season during the winter are none the less important, and for the assistance of those who have sufficient space to grow their own supplies for the whole year, a few hints and suggestions will be offered, which, if acted upon, cannot be otherwise than useful.

**BET-ROOT.**—Medium-sized roots are in every way preferable to those of a large size, because when very large they are coarse, and then nothing can be more objectionable. To produce good roots without any tendency to coarseness, sow in ground that was liberally manured the previous season, and was either ridged or dug up in the autumn, and has undergone a thorough exposure to the winter weather. It is also important the soil should be well broken up throughout its entire depth, because if it is turned without the lumps in the bottom of the trench being well broken up, a considerable portion of the crop will consist of forked roots of no use whatever, excepting it be to feed pigs. If there is any doubt upon this

April.

point, turn over the quarter again, for there will be sufficient time for the surface soil to become mellow by the time the seed should be sown. The middle of April will be quite soon enough for sowing the main crops, but a small bed may be sown a fortnight earlier for securing an early autumn supply. The beds should be in an open sunny situation, and the seed be sown in drills fifteen inches apart. Thin out to a distance of nine inches apart, and keep the space between the rows free from weeds. *Nutting's Selected Dwarf Red*, and *Sutton's Improved Dark Red* are two valuable varieties. In taking up the crop it is essential to avoid breaking the roots, or injuring them in any way, otherwise they will lose their fine deep colour when cooked.

**BROCCOLI.**—All the varieties are more or less tender in constitution, and there is a considerable risk of the whole crop being destroyed by frost. For this reason they must not be planted too largely in small gardens. The ground cannot well be manured too heavily, or dug too deeply for broccolis, excepting it be for the very latest varieties. To make the most of the space at disposal, plant the main crops of potatoes in rows three feet apart, and then put a row of broccoli between them. The distance at which the rows of early potatoes are apart is of no consequence, so far as the broccolis are concerned, because they will be off the ground before the latter are put out. For use before Christmas, sow in March, *Grainger's Autumn White* and *Osborne's Winter White*. Also sow at the same time, for use in December, and two following months, *Snow's Winter White* and *Early Penzance*. For early spring use sow towards the end of April *Hammond's Imperial* and *Dilcock's Bride*. To succeed these, sow early in May *Cattell's Eclipse* and *Elletson's Mammoth*. Plant out as early as convenient, and when they are to be planted between potatoes, either sow the seed rather thin, or prick out the plants some time before they become overcrowded in the seed-bed. They soon become comparatively worthless if left in the seed-bed for any length of time, and if put out between the potatoes before they attain a considerable size, the haulm will smother them. A dull day should be selected for all planting purposes, and unless rain follows quickly, water liberally, and repeat until they are established in their new quarters. The most open situation should be selected for that portion of the crop intended for the latest supply, to insure the growth being thoroughly matured by the autumn, as they are then in a better condition for resisting the effect of severe weather. For the same reason the soil should not be too rich.

**BRUSSELS SPROUTS.**—To have good crops of this highly-esteemed vegetable, liberal manuring and deep tillage are essential. Early planting is also important, and for that reason it is an advantage if the seed is sown either in September in the open border, or early in March, under glass. Good crops may be had from seed sown in the open border in March, and amateurs with small gardens will do well to content themselves with sowing in the open border early in that month. They may also be planted between potatoes, but if space can be spared for them elsewhere, it will be better to plant them on a vacant plot, as the produce will be much larger in quantity and



better in quality. There are now a large number of varieties, so-called, but nothing better can be desired than a good stock of the Brussels Sprouts, *pur et simple*, which has been in cultivation from time almost immemorial.

CARROTS.—Like the beet-root, carrots require a deep, well-pulverized soil, rather sandy than otherwise. For the production of fine, large, well-developed roots, the soil must be moderately rich, but if practicable they ought not to be sown in ground recently manured, unless the manure was well decomposed when applied to the ground. *Altringham* and *Long Surrey* are the most valuable for main crop, and should be sown early in April, in shallow drills twelve inches apart. In soils that are too shallow for the above, *James's Scarlet Intermediate* will be found invaluable.

CELERY.—It is a mistake to sow celery seed too early, unless an extra early crop is required. For general purposes, especially in small gardens, where a small space only can be devoted to it, the second week in March will be quite early enough, and if the seed-pans can be placed upon a hotbed, or in the forcing-pit, until the seed has germinated, it will be an advantage, but the seed can be readily raised in a cold frame or greenhouse. When the young plants are about two inches in height, prick them out on a bed of rich soil, made up on a half-spent hotbed, or upon a layer of partly decayed manure in a cold frame, and after the end of April it may be planted, in a bed prepared as here advised, on the open border. It must be well supplied with water, and be planted out before it receives an injury from overcrowding. Celery may be grown in single, double, or triple rows, but when more than one row of plants is grown in each trench, they must be in lines across as well as lengthwise, because of facilitating the work of earthing up. Make the trenches about eighteen in depth, and then dig in at the bottom six or nine inches of manure, and then spread a layer of the well-pulverized soil from the surface of the border over the bottom of the trench to plant in. Liberal supplies of water will be necessary in dry weather, but the crop should not be overfed with liquid manure, which, it is necessary to say, has a tendency to make it coarse. *Williams's Matchless Red* and *Turner's Incomparable White* are both first-rate. Red celery, it is well to bear in mind, is the hardiest in constitution, and for the late supply to be preferred.

ONIONS.—The soil for onions must be deep, moderately rich, and well pulverized. The best crops may, therefore, be expected from a quarter which was dressed liberally with old hotbed manure in the autumn, and was either thrown up in ridges or the surface left in a rough state during the winter to fully expose it to the action of the weather. Sow as early in March as the weather and the state of the soil will permit. Four-foot beds will be the most convenient, and the rows should be made across the bed twelve inches apart. When made across the bed the space can be more readily kept free from weeds. Thin out to about six inches apart, and if this is done in a gradual manner, there will be an abundance of onions for culinary purposes, but the final thinning must be completed before the season is far advanced, or the crop will be inferior. The crop

April.

should be housed in dry weather, and if the bulbs continue growing when they should be ripening off, bend the tops down with the back of a rake to check the growth. A good dressing of soot or charred rubbish, previous to sowing the seed, will be of material service in preventing attacks of the maggot. The most useful kinds are, *Sutton's Improved Reading*, a fine type of White Spanish; *James's Long-keeping*, the best for spring use; and *Bedfordshire Champion*, which is a fine stock of the White Globe. Several large Italian onions have been recently introduced, but appear to have nothing but size and mild flavour to recommend them, and are, moreover, bad keepers.

**PARSNIPS.**—This nutritious root requires much the same management as the carrot. The cultural details, however, differ in a few particulars, insomuch that the seed should be sown early in March, in heavily-manured ground. The roots can, moreover, be left in the ground until required for use, although it will be found more convenient to take them up in November, and lay them in by their heels, either under cover, or out of doors. When left in the beds, it is most difficult to dig them up in severe weather.

**SPINACH.**—The most valuable for winter use is the *Perpetual*, which is not a spinach at all, but a beet. It is generally known as the "Spinach Beet," and is grown exclusively for its leaves, which equal the finest spinach in appearance and flavour. Sown in March, or two following months, it will yield an abundant supply, from the time it has acquired sufficient strength until the following spring. It will withstand the effects of the driest weather in summer, and the severest frosts during the winter, without suffering. It can, therefore, be depended upon for furnishing a supply when the summer spinach is dried up with heat and drought, and the winter crop cut down by the frost. Sow in deep rich soil in rows fifteen inches apart, and thin to nine inches apart in the rows. In gathering, it is necessary to take the outside leaves carefully, so as not to injure those rising from the centre. The "spinach" beet is frequently confounded with the "seakale" beet—a perfectly distinct, and, in my opinion, worthless vegetable.

**SALSAFY AND SCORZONERA.**—Neither of these vegetables are extensively grown, although when properly cooked they form a nice variety. They simply require a moderately deep and rich soil, well broken up at the bottom. Sow in April in rows twelve inches apart, and thin so that each root has a space of twelve inches each way.

**DEATH OF THE QUEEN'S LATE GARDENER.**—It is with regret that we have to announce the death of Mr. Ingram, late gardener to the Queen. Mr. Ingram was appointed to the superintendence of the whole of the Royal gardens at Windsor and in the neighbourhood, by William IV., and was much respected by the Royal Family. After fifty years' meritorious service, Mr. Ingram retired on a handsome pension from Her Majesty, and was, at the time of his retirement, presented with a substantial testimonial by his private and horticultural friends.

## HOW TO CROP THE KITCHEN GARDEN.

BY A KENTISH GARDENER.



THE task of cropping the kitchen garden is by no means a light one, and it is more heavy in a small garden than in one of large size, because the importance of turning every square foot of ground to the best advantage is increased in proportion to the decrease in the size of the garden. It is not possible for amateurs, many of whom are engaged in other ways during the day, to become thoroughly acquainted with the most profitable system of cropping kitchen gardens, and for their guidance a few suggestions are offered, with the assurance that if acted upon, the most advantageous results will follow.

First of all, let us deal with the earliest crops, and take the south border. Here, of course, the earliest crops of peas, such as *Sutton's Ringleader*, *Caractacus*, or *Taber's Perfection*, should be sown.

Well sow the rows across the border, in a slanting direction towards the east. If the peas are thus sown, six feet apart from row to row, there will be found room enough to plant two rows of cauliflowers or cabbage plants between the peas, at two feet from row to row. Early spinach will do well in drills, between the rows of peas in the same way. The peas being six feet apart, you will obtain at least double the crop you do in the usual old method of having the rows three or four feet apart. They cannot get a sufficiency of light and air, consequently very few peas are obtained, excepting at the ends of the rows, and the outsides. Another great advantage of cropping the ground in this manner is that a greater quantity of crops are produced. The cabbage, cauliflowers, or spinach, whichever may be that are planted between the peas, will be cut and cleared off before the peas are ready. On this ground may be planted celery; and when the peas are cleared off, there will be a space of six feet between the celery, which may be planted with endive, lettuce, or coleworts, or any other vegetable that will be fit for use and cleared off the ground soon enough to earth up the celery. If this system be adopted, by giving the plants more room, and sowing other kinds of vegetables between that do not require so much time or room, we shall obtain a considerably larger amount of wholesome vegetables, and in a much higher state of perfection.

Now for a word upon cropping the quarters of the garden, as we so often see the tall kinds of peas, such as *Imperial Wonder*, *Laxton's Supreme*, *British Queen*, and others of similar growth, sown about four feet six inches from row to row. Sown in this way, one row grows into the other above the stakes. There is also great difficulty in passing between the rows to gather what few pods there are produced between the rows, the principal part of them being on the ends of the rows and the outsides.

Experience has taught practical men to sow those tall kinds of peas twelve feet apart from row to row, thus leaving between the rows sufficient space for five rows of potatoes at two feet apart. Between

each other row of potatoes a row of Cape broccoli may be planted with advantage, the potatoes being planted two feet from the peas on each side; that will leave a space of six feet when the potatoes and peas are cleared away. This ground will do for turnips or late celery, lettuce, or winter onions, and many other kinds of vegetables that may be required. When the broccoli comes off, that will make a space of about six feet; this may be thrown up into ridges until wanted. This method of cropping will be found far before the old method of sowing peas so close as four feet six inches, as there is four feet six inches of ground unoccupied until the whole of the crop of peas is cleared. There is two-thirds or more of produce by sowing at greater distance, and a considerable greater quantity of plants on the same space of ground. Brussels sprouts, savoys, and broccoli may be planted between rows of potatoes, planting them after the potatoes are earthed up, between each other row of them. If the potatoes were planted about two feet apart, the broccoli, etc., will be four feet. As the potatoes grow, they may be gently laid together to keep them from the plants. When the potatoes are up and cleared off, there will be four feet between the plants, which may be planted with coleworts or spring cabbage. When the broccoli are cleared off, Mazagan beans may be sown between the cabbage. In the place of the broccoli, dwarf French beans may be sown. If Mazagan beans or Windsor beans are not required, the dwarf French beans will do equally well. Each time the land is cleared of its various crops it will require a good manuring, and to be well trenched. If celery is changed to different parts of the garden, it will cause, by digging the trenches, the ground to be well moved. When the celery is cleared off, the same ground will do for the peas the season following, and will be midway between the ground they grew on the preceding year. Exactly the same for the celery. If scarlet-runner beans are sown twelve feet from row to row, ridge cucumbers do well between the rows. If the ridges are thrown out in the middle of the rows of runners, the cucumbers will bear abundantly. The cucumbers, by being sheltered by them, will do far better than if planted in the open garden.

Vegetable marrows will do exceedingly well if ridge cucumbers are not required. I have grown ridge cucumbers and vegetable marrows this way for years, and have never failed to get a good supply. When cucumbers are cleared off, this ground will be found useful for cauliflowers under hand-glasses; if not wanted for cauliflowers, throw out the manure, and well mix it with the soil. It will make a good bed for Early Horn carrots, as most families require early carrots. Make two or three sowings, as a small compartment of ground will be sufficient. At each sowing choose a mild dry day to sow the seed, and let it be raked in as soon as sown. If you have no frame, or none at liberty, the bed may be arched over with hoops, and covered with mats occasionally. When the plants come up, let them enjoy the free air in mild weather, and cover them with mats in cold nights whilst young; and when an inch or two high, thin them to about three inches asunder.



## PLANTS OF NOBLE ASPECT FOR COOL CONSERVATORIES.

BY B. S. WILLIAMS, F.R.H.S.,

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THROUGH the advocacy of the horticultural press and the examples afforded by the public exhibitions, plants remarkable for their richly-coloured leaves, or noble or elegant habit of growth, have within the last few years acquired immense importance, and within the same period a considerable change has been effected in conservatory decoration. Now, instead of these structures being devoted exclusively to dwarf plants grown for their flowers, we find in almost all conservatories a few Palms, Tree Ferns, and other plants of a similar character. This change is one that furnishes matter for congratulation, but at the same time it must be confessed that it is not so complete, so far as it relates to the conservatory, as it should be. No one, of course, would for a moment wish to see flowers excluded from the conservatory, because it is only when set in a groundwork of flowers, as it were, that the beauty of the Tree Fern or Palm is seen to the best advantage. They are not grown so extensively as they should be in the smaller-sized middle class gardens, partly because it is supposed that they require a special structure, and partly because it is imagined that a system of management beyond the comprehension of those who have not spent a lifetime amongst plants is required. There are, indeed, amateurs who imagine that the stove and ornamental leaved plants are inseparable. It is true those requiring stove treatment are the most showy, but there are more than sufficient for the embellishment of a conservatory of large size that may be grown with no more fire-heat than is sufficient to keep out the frost. With respect to the difficulties attached to their culture, it will suffice to say that they all will succeed with ordinary good management and with not more than one-third of the labour attached to the cultivation of soft-wooded plants. As a rule, none of these plants require any special stopping or training for the purpose of producing good specimens, and few indeed are those which require more than an annual shift. Indeed in many cases, especially after they have attained a large size, they do not require shifting more frequently than once in two or three years. Compare this with the labour attached to the cultivation of the ordinary run of decorative plants, and a moment's reflection will show which has the advantage. The class of plants to which reference is now made may, for convenience, be divided into three sections, each representing distinct forms or types of vegetation. Thus in the first section we have the representatives of a graceful yet bold and handsome habit of growth such as the Palms, Tree Ferns, *Dracænas*, and *Beaucarneas*; the second comprises the bold and handsome *Agaves*, *Bonaparteas*, *Dasyliirions*, and *Yuccas*, and others of a similar character; and the third, those with variegated leafage. All three types are indispens-

able in a collection, and a fair proportion of each should be selected; for it may be safely assumed that no one wants all Palms, all Tree Ferns, all Agaves, or all Dracænas. In the section comprising the Palms we have a wealth of material, and from this we shall select liberally, because when a few only are required the Palms should have the preference, as they can be more effectively associated with flowers of all classes. Taking the Palms first we have the *Corypha australis*, less beautiful, perhaps, than a few others, but valuable for small houses, because it does not soon outgrow the space allotted it. *Latania borbonica* is a noble species, with large glossy green fronds, and is deservedly popular for the conservatory. *Chamærops humilis*, and *C. Fortunei*, are both good, the last-mentioned being perhaps the best of the two. Several of the Date Palms also deserve attention, *Phoenix dactylifera*, and *P. reclinata*, being perhaps those most useful. *Rhapis flabelliformis* is one of the most valuable of those of small growth, and is eminently adapted for table decoration when grown singly. The variegated variety of this pretty little palm is remarkably beautiful, but it is as yet comparatively scarce. *Seaforthia elegans*, *S. robusta*, and *S. Veitchi*, have gracefully-arching pinnate fronds, and are most valuable for the conservatory from the time they are a foot in height until they become too large for the house; they are also useful for the dinner-table when in a young state. The first of the three is the cheapest, and the last one the dearest. Several of the *Syagrus* are worthy of a place in the most select collection, especially *S. amara* and *S. comosa*. *Thrinax parviflora*, and *T. tunicata*, are also distinct, and deserve a hearty recommendation.

The amateur should commence with well-developed specimens, not necessarily large, because when small seedlings are taken in hand several years must elapse before they show their true character. Their cultural requirements are few and simple, and the cardinal points may be said to consist in potting them in a compost of sound turfy loam, to which a small proportion of peat and sand has been added, supplying them liberally with moisture during the growing season, never allowing the soil to become dry, and on no consideration to disturb the roots when repotting them. It is also important to drain the pots with some degree of care, for the purpose of guarding against the possibility of the soil becoming sour.

In selecting Tree Ferns take *Dicksonia antarctica* first, and then *Alsophila australis*; both are good, but the first is perhaps the most effective, and it is the neatest in growth. *Cyathea dealbata* is also very fine. All the above will succeed well in a mixture of peat, loam, and silver sand; they require liberal supplies of water, and should have a shady position during the summer season. The *Dracænas* suitable for cool conservatories are, *D. australis*, a graceful bold-growing species; *D. australis lineata*, a very beautiful variety of the above and equally desirable; and *D. cannaefolia*, a handsome species with broad deep green foliage, very distinct and good. *D. Veitchi* is in the way of *australis*, and although very fine is hardly required in the same collections. *D. draco* is very distinct and desirable, but less graceful than the above. The *Dracenas* require an open compost and a light airy position, but they are by no means peculiar in their requirements or difficult to manage.

Amongst other plants belonging to the first group mention must be made of *Aralia papyrifera*, *A. reticulata*, and *A. Sieboldi*; *Araucaria Bidwilli* and *A. excelsa*; *Phormium tenax*; and *Rhopala corcovadense*, and *R. elegans*, all of which are easily managed.

In dealing with the second group it will be necessary to dip rather deeply into the Agaves. For a small collection preference should be given to *A. applanata*, *A. filifera*, *A. geminiflora*, *A. glauca*, and *A. Schidigera*. *Americana* is very bold and handsome, and should be grown wherever room can be spared for it. Of the Yuccas belonging to this group, mention must be made of *Y. aloifolia*, *Y. concava*, *Y. filamentosa*, and *Y. filifera*; and for those who can afford it, *Y. De Smetiana*. The Agaves and Yuccas require a rather open compost, containing a considerable proportion of grit. They should have a light and airy position, and be kept rather dry at the roots during the winter season.

The variegated plants comprised in the third group are somewhat limited in number, but there are a few extra good things amongst them. All the variegated varieties of the American Agave are good, that known as *Agave Americana variegata* being the cheapest, and is moreover very effective. The beautiful variegated New Zealand Flax, *Phormium tenax variegata*, is one of the grandest cool conservatory plants we can possibly have; it is of noble aspect, and the foliage is beautifully striped with gold. *P. Colensoi variegatum* is also very beautiful, but unfortunately rather expensive as yet. *Yucca aloifolia variegata* is also very fine, indeed it is one of the first variegated plants that the amateur should buy for the conservatory. *Y. filamentosa variegata*, *Y. quadricolor*, and *Y. quadricolor Stokesi*, are all exceptionally fine, and deserve all the praise that can be bestowed upon them.

## SPRING TABLE DECORATION FOR EVERY-DAY USE.



HIS being the season of the year to my mind when flowers are most valued on the dinner-table, and in the drawing-room, by those who have not hot-houses at their command, I offer a few hints on the above subject. Some people think they can grow nothing worth having at this time of year, unless they have a stove-house; but this is a very great and common mistake, as I have seen much prettier and more elegant little stands of flowers grown by those who only possess a cold pit and small greenhouse, than by those who had much more glass.

I shall now do my best to describe a few I have seen. One was a small round pan of say about ten or twelve inches across, and four deep; in the centre was planted a neat plant of *Adiantum cuneatum*, over the surface of the pan was growing *Selaginella denticulata*, up through which were growing no end of *Double Snowdrops*; the effect was elegant and thoroughly simple. Another was done in the same style, but *Selaginella Kraussiana variegata* and *Scilla Siberica* used instead of the *denticulata* and the snowdrops. The effect of the

bright blue of the scillas peeping through the mat (if I may so call it) of variegated selaginella, and all overshadowed by the light and graceful fronds of the *Adiantum* in the centre, was simply charming. Another was filled with *Neapolitan Violets*, out of the centre was growing a large pure white *Hyacinth*; it was a pretty neat-looking stand, and perfumed the whole room. *Pink Hepaticas* and a *White Cyclamen* could be used in the same way, and would look very well.

The pan the snowdrops were growing in was of rustic terra-cotta, and the other two of virgin cork, which was much cheaper and looked quite as well as the terra-cotta, if not better. But as to its lasting from season to season as the terra-cotta would, I have my doubts.

The selaginellas, adiantum, and Neapolitan violets, I need hardly say, can be grown by any one who has a moderately-heated greenhouse. The scillas and snowdrops were grown in a cold pit under cocoa-nut fibre and then pricked, when they were well started and showed flower, into the pans. This is a much better plan than planting the bulbs first in the pans, as you can pick those out that are about equal in their growth and prick them into your pans, insuring their flowering nearly all at the same time, whereas if planted first in the pans, one may come up before the other, and so on, and in that case the effect would of course be spoiled. A. H.

*Upper Norwood.*

## NEW AND CHOICE BEDDING PLANTS.

BY HENRY CANNELL, F.R.H.S.

The Nursery, Station Road, Woolwich, S.E.



IN a very short space of time we shall once more be busy with planting the flower garden for the summer season, and to insure having a sufficient number of the proper kind of plants, the arrangements should be completed as quickly as possible. The manner in which each bed in the flower garden is to be planted, should be determined upon without a day's delay, and the particulars with the number of plants required entered in a book. When this is done the work will go on smoothly, and moreover be executed more expeditiously than it possibly can be when the arrangement of the planting of the beds is put off until the plants are ready for going out. Last month I gave the names of the best zonal pelargoniums grown for their flowers, for bedding purposes, and for the assistance of those amateurs who have no opportunities for testing new introductions I now intend giving the names of a few of the best miscellaneous bedders. In doing this, I shall take care to enumerate those only which are first-rate in their respective classes, and no new bedder will be mentioned unless it is perfectly distinct from, or superior to, others already in cultivation. This I am able to do without difficulty, as all the new bedding plants are thoroughly tested in my trial garden, and compared with the older kinds. For the greater convenience in selecting, I will divide the miscellaneous bedders into two classes—the first to in-



clude those grown for their flowers, and the other those having ornamental foliage, and adapted for embroidery and carpet bedding.

#### FLOWERING PLANTS.

**AGERATUMS.**—The most useful for general purposes are, *Imperial Dwarf* and *Prince Arthur*, which are ten and fifteen inches in height respectively. The colour of the flowers is exactly the same as the old *Ageratum Mexicanum*, which from its great height is only suitable for back rows in wide borders. A deep, moderately rich soil is the most suitable.

**CALCEOLARIAS.**—These showy bedders usually fail through being planted in poor soil. The secret of having good beds of calceolarias, is to put out healthy plants in beds that have been liberally dressed with horse manure and dug deeply. The best of the yellow-flowered varieties is *Golden Gem*, as it combines a hardy constitution with a compact habit; *Gaines' Yellow*, *Yellow Prince of Orange*, and *Brown Prince of Orange*, are also very good. They should be planted early in the season, to enable them to become well established before the hot weather.

**DAHLIAS.**—The dwarf bedding varieties make grand beds, if planted in moderately good soil; they are also valuable for back rows in ribbon borders. *Alba floribunda nana*, white; *Captain Ingram*, dark crimson; *Pluton*, yellow; *Rising Sun*, scarlet; and *White Bedder*, are good representatives of the several shades of colour we have in bedding dahlias. The heights of the above range from two to three feet, but they can be kept down with the help of a few strong pegs.

**HELIOTROPIUMS.**—These are best adapted for the mixed border, although they make good beds and may be employed in ribbon lines. *Jersey Beauty*, dwarf and free; *Miss Nightingale*, deep lilac; and *Miss Lewington*, very dark, are all thoroughly good, the former especially so. They require a moderately deep rich soil.

**LANTANAS.**—These make beautiful beds when strong plants are put out. Where the number of beds is small it will be a good plan to fill one bed with several varieties. *Adolphe Hwas*, canary yellow; *Jean Bart*, yellow; *Impératrice Eugène*, pink; *Mons. Rougier Chauvière*, scarlet; and *Raphael*, are the most useful for the flower garden, as they are neat in growth and free-flowering. They succeed best in a warm sunny situation.

**LOBELIA ERINUS.**—Of the type represented by the well-known *speciosa*, we have now some most valuable varieties. *Brilliant* will soon be extensively grown, for it is very compact, continuous in flowering, and the flowers are very large, and of a beautiful dark blue; *Indigo Blue*, very dark and compact; *Speciosa grandiflora*, very free-flowering, compact, and rich in colour; *Blue Boy*, valuable for standing the effects of the sun and heat better than any of the others. A considerable number of white-flowered varieties have been introduced, but they are of little value. A variety known as *Pearl* is the nearest approach to white we have that is of any real service. The upper lobes are slightly tinged with blue, but the flowers are so large, and produced so profusely, that they have the appearance of being quite white at a short distance; in growth it is very compact. *Knight's*

*White Lady* is also very good. *Little Gem* is an improvement on *Paxtoni*, and the best of all the light blues. The soil in which lobelias are planted cannot well be too rich.

**LOBELIA PUMILA.**—The varieties belonging to this section are much dwarfer and more compact than the *speciosa* section. They are peculiarly well adapted for divisional lines in panel beds, and also for second rows in beds and borders where a dwarf-growing plant with neat flowers will be appropriate. It is very important that the soil should be friable, and moderately rich, and also that the plants be rather small, and put close together. *Pumila grandiflora*, bright blue; *Celestial Blue*, light blue; *Annie*, light lilac; and *Purple Prince*, purplish, are all good in their several shades of colour, but for general usefulness the first-mentioned is in every way preferable. These varieties average six inches in height, and as much through, forming a solid line of bloom.

**PANSIES.**—*Sandbeck Gem* and *Pride of Rufford* are both valuable for summer bedding, as they are very dense in growth, and flower profusely throughout the summer season. The beds should be prepared as advised for calceolarias, and the seed-pods removed as it becomes necessary.

**PETUNIAS.**—Very few petunias are adapted for bedding purposes, as the flowers receive so much injury from bad weather. The best are *Miss Earl*, pink, and *Spitfire*, deep purple.

**TROPEOLUM.**—Of the compact growers, *Yellow Dwarf*, yellow; *Lustrous*, crimson; and *The Moor*, maroon, should have the preference. *Cooperi*, scarlet, and *Crimson Banner*, are the best of the trailing varieties.

**VERBENAS.**—A considerable number of verbenas do well in the flower garden in very favourable seasons, but those to be depended upon are—*Crimson King*, scarlet; *Blondin*, magenta; *Enville Blue*, blue; *Karl's Kleine*, purple maroon; *La Grande Boule de Neige*, pure white; *Purple King*, purplish blue.

**VIOLAS.**—Some of these are very valuable. *Lutea grandiflora major* is one of the best yellow-flowered dwarf bedders we have, and is also valuable for spring bedding. *Perfection* has larger flowers than the preceding, which are of a deep blue, shaded with mauve. When good plants are put out early in rich soil, it is one of the most valuable bedders of its colour. In a large panel bed in my nursery last summer it was magnificent, and much admired. It is also useful for spring bedding, but the same set of plants will not do for both seasons. This remark applies to all the violas, and to have them in the brightest perfection they should be planted at the same time as the verbenas.

#### FINE FOLIAGE BEDDERS.

**DARK LEAFAGE.**—*Alternanthera paronychioides* and *A. magnifica* are the most useful, because of their more robust habit and hardy constitution. They should have the warmest situation the garden affords, and not be planted until late in the season. *Coleus aurea marginata*, crimson, with golden margin; *C. Princess of Wales*, reddish carmine; and *C. Verschaffelti*, deep crimson, are all valuable

for bedding, and very effective. *C. Ruckeri*, bronzy black, is useful where a very dark-leaved plant is required. *Iresine Lindenii*, deep sanguineous red, is perhaps the very best of its class for second rows and beds, and cannot be recommended too highly.

**GOLDEN LEAFAGE.**—For general usefulness *Pyrethrum Golden Feather* is unsurpassed, as it can be kept to any height, and always presents a bright and effective appearance. The seedlings should not be sown too early, as it is preferable to have small plants, and put them rather close together. Another good yellow-leaved plant is *Thymus citriodorus aurea*. It is very dwarf and rich in colour, and well adapted for carpet bedding. *Fuchsia Golden Fleece* also forms a compact line, and is very effective for centres of beds. *Abutilon Thompsoni* is invaluable and unsurpassed where a plant ranging from one to two feet in height is appropriate.

**SILVERY LEAFAGE.**—*Antennaria tomentosa*, *Cerastium tomentosum*, and *Echeveria secunda glauca* are all dwarf, and most effective for marginal lines. The two first-named are quite hardy. *Mesembryanthemum cordifolium variegatum* has proved itself to be first-rate for all purposes. It has a spreading habit, and a band can be kept to any desired width. *Achillea umbellata*, *Centaurea ragusina compacta*, *C. argentea plumosa*, *Polemonium cæruleum variegatum*, and *Santolina incana*, are all upright in growth, and useful for first or second rows. *Stachys lanata* and *Veronica incana* are both hardy, and form most effective marginal lines. The last-mentioned is the neatest in growth.

## NOTES ON POTATOES.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



SINCE the introduction of the Early Rose potato into this country, there has been quite a potato mania on a small scale, and from the attention this tuber now receives, it appears likely to continue for some years to come. The accession of new varieties to the lists has been very considerable during the period here alluded to, and some of them possess, no doubt, distinctive and valuable qualities. Yet it is not desirable that the amateur should purchase high-priced varieties until they have been subjected to a thorough and systematic trial by independent growers, such as our Editor, who have opportunities for comparing them with the best of the older kinds. In saying this, I must not be understood to object to the purchase of seed potatoes; but, on the contrary, a change of seed is of the highest importance, and a fresh supply of seed should be obtained from a distance every few years, either by way of exchange or purchase. If fresh supplies of one or two varieties are obtained every year, the expense will not be felt so severely as it would be were an entirely fresh stock of all to be purchased in one season.

In the cultivation of potatoes, it is of the utmost importance to bear in mind that the potato disease never makes its appearance until quite the end of July or August, but generally not before September, and invariably in connection with cold wet weather. Mr. Hibberd's theory with respect to the disease coming from the sun, or "cosmical," as he calls it, may appear extravagant, yet it is borne out in practice, for in hot weather, like that experienced during the summers of 1868 and 1870, the disease is not heard of; but last summer, which was one of the wettest and coldest on record, it again made its appearance, and in some districts destroyed a very considerable percentage of the crop. The disease, it should also be borne in mind, does not attack the tubers when growing, but during the process of ripening. This being the case, the question arises as to what lessons we, as practical men, derive from these facts.

Well, the lessons we ought to learn, teach us that we should plant early, and select varieties only that attain maturity at a comparatively early date. Very early sorts are not desirable, because they are not heavy croppers, and do not keep well far into the following spring, but the comparatively early varieties, known perhaps better as "second earlies," if taken up as soon as thoroughly ripe, keep well, and in some cases better, than late sorts, which, from a want of warmth to complete the ripening process, are stored in a half-ripened condition.

The potatoes should not be planted when the ground is in a wet pasty condition, but they should be planted on the first day in March that the state of the soil will permit, for every day's delay represents a certain loss, either in the quantity or quality of the crop. Potatoes should have more room than is usually accorded them, and for the main crop the rows should be not less than thirty inches apart, and the early sorts, which do not produce a great amount of haulm, not less than twenty inches. With reference to the manner of planting, it may be safely said that they ought not to be planted with a dibber. It would not be a difficult task to explain why, but I should not be justified in occupying space so valuable as the pages of the *FLORAL WORLD* in doing so. Besides, for all practical purposes, it is quite sufficient to say that they should be planted in trenches made with the spade. If the ground is already dug over, commence at one end, and open out a trench the width of the spade and four inches in depth. Lay the sets at the proper distances apart, and cover with the soil taken out in making the second trench, and proceed in the same manner until the whole plot is planted, and cover in the last with the soil taken from the first. Now in the case of quarters unprepared, they should be planted as the digging proceeds, so as to avoid treading upon the ground after it is turned over. The sets must not, of course, be put in the bottom of the trenches made in digging, but in trenches prepared specially, and of the proper depth.

Keeping in view the importance of planting varieties that arrive at maturity comparatively early, select from the list of round sorts *Drummond's Prolific*, *Dalmahoy*, and *Gruffe Castle*; and from the



number of kidney varieties, *Veitch's Improved Ashleaf*, *Beaconsfield*, and *Headly's Nonpareil*. Good later kinds are represented by *Paterson's Victoria* and *Walker's Improved Regent* amongst the rounds, and by *Oxfordshire Kidney* and *Fluke* amongst the kidney-shaped varieties.

## SHOWY ANNUALS FOR SUMMER FLOWERING.

**A**NNUALS are everywhere annually condemned, but the condemnation is never pronounced till some time in July, when most of the popular kinds of hardy annuals go out of bloom; yet when spring returns again, the people who have so often condemned sow them again, and as certainly rejoice, while the bloom lasts, at their freshness and beauty. Of course a few real causes for grumbling occur, owing to the selection of kinds incapable of producing the effect desired, or through treating them badly, and, worst of all, through expecting from them more than they are capable of accomplishing—more than they profess by their exponents to be likely to accomplish. But our lists want revising throughout, and materials for the revision are accumulating fast, and we may hope to see such a purgation as has been effected in catalogues of roses. But cultivators must do justice to them, else the corrections of catalogues will have but half their proper value. The seeds must be thinly sown on ground properly prepared; the plants must be thinned in good time, and must have water if needful, and such other attentions as are implied in the word “cultivation;” and when the annuals have had their day, instead of abusing their weedy and seedy stems, it will be in better taste to clear them off the ground, and supply their places with plants that will bloom to the end of the season. If we are asked what would best suit to follow annuals, we would say “annuals.” When the early-blooming kinds are over, the cultivator should be ready to supply the vacancies with Stocks, Asters, Balsams, Phloxes, Helichrysums, Portulaccas, Zinnias, and others that may be had, either late or early, at will, but which cannot be put out in the open ground till the latter end of May or early in June. Failing these, there is the old resource of bedders, and unfortunately a large proportion of the inhabitants of these isles have an idea that Geraniums, Verbenas, and Petunias are the only plants in existence capable of producing a gay garden.

Among those to be recommended, we will first think of the hardy border kinds. Here we have Clarkias, Eschscholtzias, Calliopsis, Candytuft, Collinsias, Kauffussias, Larkspurs, Leptosiphons, Silenes, Nemophilas, Saponarias, Viscarias, and a hundred others, really beautiful when in bloom, and worthy of culture in extensive breadths on the true bedding system, and not without interest as botanical examples. Among these the most beautiful are the double Clarkias. These produce noble flowers double the size of the species, various in colour, and so enduring that a bed of them will hold its flowers gaily till very near the 1st of August, provided the soil is rich, and the plants thinned while in the seed-leaf to three inches apart, and

thinned again three weeks afterwards to six inches apart. We know of nothing among hardy border annuals to surpass these double Clarkias.

For those who like sweet-scented border flowers, there is the old yellow Lupin, of late years relegated to the cottage garden, but good enough for patches in any border, and not unworthy of a bed, to form a clear mass or band of yellow; like the song of the nightingale, though very sweet, it is of short duration. But the most sweet-scented of all border flowers is *Amblyolepis setigera*, a yellow flower of no very great beauty, but of an all-powerful odour, as it scents the air for hundreds of feet about the spot, and the very best of all plants to grow under windows, near arbours and garden seats, to surpass all patchouley and lavender scents, in which of late years the ladies indulge so freely. Another useful annual of the old school is *Centranthus macrosiphon*, the Valerian of the old gardens, a glowing flower when seen in masses on the face of chalk cliffs, where it is quite at home, and therefore well adapted to chalky districts.

Here, in the alphabetical progress, we come upon the showy tribe of Dianthus, and since *Heddewigi*, *laciniatus*, *hybridus atropurpureus*, and *Verschaffelti*, the range of ornamental gardening has been extended almost indefinitely, for people of slender means and few facilities. Grown early in pots under glass, they are sure to bloom the same season, and give an endless variety of crimson, scarlet, and ruby tints, many of them worth keeping as perennial plants, to propagate by cuttings, and all of them showy, and fit for the best beds or borders in any garden in the kingdom. *Isotoma axillaris* and *I. petraea alba* are the most beautiful hardy annuals for working into ribbons, the flowers of the first rivalling those of *Lobelia speciosa*, those of the second snowy white; the habit of the plant neat and uniform, and well adapted for a second row to variegated arabis. A great advantage in the culture of these *Isotomas* is that they may be cut back when getting seedy, and a second bloom produced, so as to continue the plant in its full beauty to the end of the season. We must single out from the *Leptosiphons*—which are all pretty, neat, and interesting annuals—*Leptosiphon aureus*, an exquisitely beautiful orange flower, of the size of a shilling, produced in great abundance, the plant being dwarf and neat, and suited for a front line, and *L. rosaceus*, a lovely variety, with rosy flowers. Among the *Nemophilas*, our old friend *N. insignis* holds its place as ever. The Poppies have been so much improved, that, except for their unmistakable foliage and seed-vessels, it would be hard to determine the relationship of the corn poppy with the picotee and pæony-flowered varieties; these are, indeed, most beautiful, the colours various, delicate, and pure, the fringed petals and vivid stripes giving them a beauty which is quite unique. The *Saponarias* have never declined in popularity, and the beautiful *S. Calabrica*, with its myriads of little lively pink blossoms, has a companion now in *Calabrica alba*, a pure white; nothing can surpass these for beds and the front lines of ribbons. We must go back to the cottage-garden for another good friend—Venus's Looking-glass (*Campanula speculum*), which has been turned out of

fashionable gardens because cheap and common. It is one of the very best annuals we possess, and ranges well in character with another cheap annual we have often recommended — Venus's Navelwort (*Cynoglossum inifolium*): the first a glowing purple flower, with a clear white eye; the other white, with silvery foliage. Whoever is about to sow annuals must include these in the list, or miss the proper enjoyment of this perishable class of flowers. The showy annual Chrysanthemums are justly acquiring popularity. *Chrysanthemum tricolor venustum* would make as fine a bed as any plant at present favoured by fashion. It is not so hardy as the Californian annuals, and must be sown under glass for an early bloom; but if sown in the open ground in April, it will soon make up for lost time, and bloom till near the end of the season. The flower is boldly marked with deep crimson banded with yellow, centre crimson-brown, the habit dwarf, and the plants one mass of bloom during the whole of July, August, and September. *Chrysanthemum Burridgeanum* merits equal praise; the flower has a snow-white ground, brown-crimson centre, and belt of clear canary-yellow. To make the most of these showy chrysanthemums, they should be pinched back when about four inches high; they will then throw out side-shoots, and each plant will cover a square foot of ground with glowing flowers. *Silene armeria*, one of the oldest of the annuals in our present list, comes as near to what we understand by Magenta as any flower in cultivation. Its neat slender stems continue for about eight weeks to produce a succession of small richly-coloured flowers in close trusses, and it is undoubtedly the best of the catchflies for ribbons. A most suitable plant to combine with it for a mass of yellow is *Oenothera Veitchii*, a dwarf plant of rather delicate habit, which produces an immense profusion of neatly-formed clear yellow blossoms. These should be sown where they are to bloom, and be thinned in good time, so as not to suffer by crowding. The Viscarias come into the same category, and though there are several new ones, we must give the preference to the old *V. oculata*. But the grandest colouring it is possible to accomplish by means of annuals may be attained by the use of the new candytufts, on which comments have been made in these pages on more than one occasion. *Iberis Kermesina* is the nearest approach to a rich crimson ever accomplished in this class. *Godetia Whitneyi*, figured in the last year's volume, has proved itself to be invaluable for borders and masses, and more than justifies all we have said in its praise when we introduced it to the notice of our readers.

Amateurs who save seed from choice varieties of popular annuals should be most careful to destroy every plant in the seed-piece that shows a poor colour or a weak habit, or there will be a speedy reversion to the original type, and the variety will be lost. These are all true bedding annuals, and as worthy of being extensively used in geometric gardens, as well as in raised borders, as any of the favourites which bear the name of "bedders" almost exclusively. We pass over many others that are well known, because there is nothing new to be said respecting them, except it be to use

them well, and only blame the seedsman when proper measures have been taken with the seed, and only blame the flowers when the cultivation has been according to reasonable prescription.

Plants with ornamental foliage are justly popular, because attractive during the whole of their career. With ordinary flowers we must wait till they bloom before we have any effect, and when out of bloom they are once more unattractive; but plants with coloured foliage are beautiful as soon as they are visible, and that is one good reason for the popularity of *Perilla Nankinensis* and *Atriplex hortensis rubra*. It must be remembered that the last-named pet is very short-lived, and will not, under any circumstances, last the season through. We have adopted the plan of replacing it with *Perilla*, which can be propagated from cuttings any time after it is of sufficient size to furnish cuttings, and if taken early in June, they will be rooted in time to plant out when the ruby spinach has had its day. *Chenopodium atriplicis*, which Messrs. Henderson condemned in their 1861 catalogue, we have proved to be one of the most beautiful of all tropical-looking plants. It must be sown in very sandy compost, in well-drained pans, under glass, be twice transplanted, first to thumbs and then to 60's, and be grown to a height of from two to five feet, and be frequently pinched in; it is then a rival to *Humea elegans*, the stems and leaves richly powdered with crimson, and it does not show a trace of green till quite the end of the season, when it begins to ripen seed. Most valuable in this class is *Amaranthus melancholicus ruber*, the large leaves being richly coloured with crimson and bronze. *Amaranthus bicolor*, again, has showy foliage, brightly marked with gold yellow. The neat willow-leaved amaranth, *A. salicifolius*, is a grand acquisition, and will be found most valuable for centres of beds, and for vases, as the habit is most graceful, and the leaves of the richest hues of bronzy red, orange, and carmine. Fully-developed specimens attain a height of three feet, and nearly as much in diameter. The Brazilian, and even some of the garden beets are worth sowing in mixed borders, as it is an easy matter to remove from a patch any that are less attractive than the rest; and among the Brazilian beets are varieties of foliage little less attractive than that of the Cannas. A gem of this class is *Oxalis corniculata foliis atropurpureis*, the small clover-like leaves delicately stained with crimson, and the plant best adapted for a front row of a foliage ribbon. Lastly, there remain the Stocks, Asters, Zinnias, Balsams, etc., gorgeous in colouring, easy to grow, and costing so little for seed, that they may be considered as gifts to be had for the asking. A garden without a good display of these things can be but little attraction for any person of taste.

S. H.

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THE VEITCH MEMORIAL.—We have been informed that the trustees of this memorial have invested the balance of the fund, amounting to £870, in stock of the Great Indian Peninsula Railway; and that as soon as sufficient interest accrues to render the prizes to be offered worthy of the object in view, they will proceed to make arrangements to determine their relative value, and to submit them to public competition, in accordance with the powers conferred upon them by the subscribers.



## CUCUMBERS IN FRAMES.

BY THOMAS TRUSSLER.

Head Gardener, Knighton, Buckhurst Hill.



THE cultivation of the cucumber in the summer is attended with so few difficulties, that there is no reason why the owner of the smallest garden may not keep his table supplied with cucumbers of the finest quality throughout the season. Contrary to the general belief which prevails amongst amateurs, no bottom-heat whatever is required, and they may be grown in the most rough-and-ready contrivances, if the pits and frames occupied during the winter months with bedding plants or cauliflowers cannot be spared for them. All that is necessary in the way of preparation when the frames are cleared of their winter occupants, is to put a few barrowfuls of soil under each light, and as soon as it is warmed through, to put a plant in the centre of each hillock. If it is inconvenient to raise a stock of plants beforehand, two or three seeds may be inserted in each hillock, instead of a plant, for they will soon germinate if the frame is kept close. The plants when large enough can be thinned to one or two under each light; there is a loss of time in sowing the seed, but it is not so great as those who have not tried it may imagine, because after the plants once begin to grow, there is no further check.

The compost for cucumbers must be light and rich, so that the roots can run freely, and at the same time take up an abundance of food for the support of the plants. Probably there is nothing to surpass a mixture of two parts turfy loam, and a part each of leaf-mould and partly-decayed manure, well mixed together and used in a lumpy condition. The soil can be put in the form of a ridge down the centre of the frame, or in hillocks, one under each light, but the frame should not be filled with soil at first. It will be found that the growth will be more vigorous when they are planted in a small body of soil, and additions made to it as the roots protrude through the sides, than it would be were they to be put out on beds occupying the entire frame. This, however, is not of so much importance in planting cucumbers at this season of the year as it is during the winter and early spring.

To utilize the sun-heat as much as possible, shut the frame as close as possible after the soil is put in the frame, so that it will have a fair chance of being warmed through before the plants are put out. They will also receive material assistance from the heat of the sun, if the shade is just sufficient, and no more, to protect them from the sun; for the heat that will penetrate where the glass is not covered, will have a considerable influence upon the temperature of the frame. It is only during the first few days after they are turned out in the bed that shading is necessary, and it may be said with safety, that when established, none whatever is required, as no injury will be done to the foliage if the most ordinary care is

bestowed upon air-giving. As it is important to make the most of the heat from the sun during the early part of the season, no more air must be admitted than is necessary to prevent the temperature rising too high. The temperature should not exceed 80°, excepting when the frame is shut up in the afternoon, and then it may rise ten degrees higher, provided it is not too early in the day.

The general management consists in syringing them overhead once or twice a day, according as the weather may be hot or cold, or wet or dry, supplying them liberally with water, and regulating the growth; the water must be tepid when used, and that required for the morning use should be placed in the frame the previous evening, and that for the afternoon should be exposed to the sun during the day.

To insure the frame being well-filled as quickly as possible, nip off the point of the main stem in about a week after the plants are turned out in the bed, and stop the leading shoots which push afterwards, when they reach the sides of the frame. After these are stopped, laterals will start from almost every joint, and to prevent overcrowding, a small proportion must be removed by pinching them off close to the main shoots; the others should be stopped at the first joint above the fruit. All subsequent growth should be dealt with in a similar manner, and every lateral that is not required for fruit-bearing or for filling up a vacant place, should be removed when a few inches in length.

After the plants have been in bearing a considerable period, it will be necessary to remove the main shoots to make way for new growth; but as a rule, it is not wise to remove more than one at a time. If they are examined once or twice a week, and a small portion of the superfluous growth thinned out each time, there will not be much difficulty in keeping the frame well filled with healthy wood, without any overcrowding.

The best of the short cucumbers for frames is *Master's Prolific*. The *Telegraph* is also first-rate, as is *Blue Gown* and *Sutton's Berkshire Champion*. These three are the best of the long cucumbers, and can be recommended with confidence.

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## GARDEN GUIDE FOR APRIL.

**KITCHEN GARDEN.**—Make up a bed for the main supply of cucumbers, and either sow at once on the bed, or turn out plants of previous sowings on to hillocks. Sow, in the open ground, seakale, rhubarb, asparagus, all kinds of cabbage, Scotch kale, Brussels sprouts, broccoli, etc.; radishes, onions, lettuce, broad beans, peas turnips, carrots, small salad, French and runner beans, spinach, beet, parsley, parsnips, American and Normandy cress, and sweet herbs. Sow, in heat, tomatoes, marrows, pumpkins, cucumbers, egg plants, capsicums, and celery. Use the hoe freely.

**FRUIT GARDEN.**—Finish grafting as soon as possible. Nail in wall trees, and protect, without waiting till the blossoms open.

There is nothing better than Haythorn's hexagon netting. Mulch newly-planted trees to encourage growth of roots, and let them be securely staked at once. At the end of the month thin the young fruit of apricots, if the trees are well covered.

**FLOWER GARDEN.**—Cuttings of bedding plants put in now will bear more heat than those put in a month ago, as vegetation is more active with the advance of the season. There is plenty of time now to raise stock of verbenas, petunias, fuchsias, and lobelias, and they will bear a moist temperature of 75° to advantage. Pot off into thumb-pots newly-struck cuttings as soon as they begin to make new growth at the points. Young plants that want a shift to larger pots, and which are to be stopped to make them bushy, should be stopped first, and the repotting delayed till the side-shoots begin to break. Tender Annuals ought to be growing freely now in a genial atmosphere, and very near the glass. If they are running up with long legs, prick them out and plant them in the fresh soil deep enough to cure their legginess. Too much heat and insufficient light will cause them to be drawn, and if they are much drawn, they will never flower well. Continue to strike chrysanthemums, and begin planting out the strongest plants. Prepare the beds to be planted next month by dressing with leaf-mould. Calceolarias may be planted the last week.

*Antirrhinums.*—To grow the *Antirrhinums* successfully, the soil should be moderately deep and rich, but not naturally wet or of a cold retentive character. In cold retentive soils there is a great risk of their perishing in winter. They can be readily propagated by means of cuttings put in under a hand-glass in July. Seedlings are also readily raised, and if proper care is bestowed upon saving the seed many fine varieties may be expected. Plants raised from seed sown early in March, and assisted with artificial heat, will flower freely the following autumn, and those raised from seed sown in the autumn will bloom during the summer following. Whether the seed is raised in frames or the open border, it is most important to plant them out in their permanent quarters before they receive any injury from overcrowding. As a rule, they should be planted twelve inches apart, unless they are planted in the mixed border, and then it is a good plan to put them in clumps of three each.

*Asters.*—A free growth during the earlier stages; a deep rich soil and liberal supplies of water during the summer season, are the main points in the cultivation of *Asters*. To grow them to perfection sow the seed in shallow boxes in the first or second week in April, place in cold frame, and keep rather close until the plants begin to show above the surface. Then admit air freely, and as soon as the plants are large enough to handle, prick them out, at a distance of three inches apart each way, in a bed of rich soil made up to a depth of six or eight inches in a cold frame. Towards the end of May plant them at a distance of nine or twelve inches apart, in a bed which has been previously enriched with partly-decayed stable or old hotbed manure. Great care must be taken in transplanting them to avoid injuring the roots; and for that reason they should be lifted, and also planted, with a trowel. The bed should be watered

April.

liberally, until they are established, and also afterwards if the weather is dry and the time can be spared for the work. When the flower-buds are visible mulch the space between the rows with half-rotted manure. When grown for exhibition they should not be planted in the same bed two years consecutively, unless it has had a liberal dressing of maiden loam and manure. Fumigate occasionally when in the frame, to keep them free from green-fly, and if the plants are attacked when in the open air, dust with tobacco powder, and water them overhead twelve hours afterwards, or the powder will injure the foliage.

*Marigolds*.—A comparatively deep soil is necessary to have these showy flowers in perfection, but they can be grown well in almost any kind of soil. If they are required in flower early in the summer, sow in a cold frame, transplant into a bed of soil under glass, and plant in the permanent quarters as soon as all danger from frost is past. They, however, make a most satisfactory display if sown in the borders or beds where they are to remain, and then thinned out. Or they may be sown in clumps in the open border, and then be transplanted. A rich soil is most desirable, as it promotes a luxuriant growth without an equivalent proportion of flowers.

*Pansies*.—These showy flowers require a deep, rich, and friable soil, and a comparatively cool situation for their successful cultivation. In a dry situation they are liable to be burnt up in hot, dry summers, and in cold heavy soils they perish wholesale from an excess of moisture during the winter season. They grow and flower freely in soils which have had a moderate dressing of stable manure and leaf-mould applied in the autumn, and then dug and left in a rough state during the winter. Propagation is effected either by seeds or cuttings; the last-mentioned means being resorted to for increasing existing varieties, and the former for raising new ones. Some of the varieties, more especially those known as the "Cliveden" Pansies, reproduce themselves with remarkable accuracy. Plants raised from seed sown in a cold frame early in the spring will flower freely in the autumn, and those from seed sown towards the end of the summer will produce a profusion of flowers throughout the early part of the next season. Strike the cuttings in July, and as the old shoots which have produced the flowers are of no use for furnishing cuttings, cut the plants back when they go out of bloom, and take the tops of the healthy young shoots, which push from the base, for cuttings, and strike them in a cold frame. Plant them out in a nursery-bed as soon as they are struck, and transfer to the permanent beds as soon as they are well furnished with roots and have acquired sufficient strength. A rather shady position, such as a border on the north side of a quick hedge, is the most suitable. If intended for pot culture, put them in three-inch pots; when rooted keep them in a cold frame during the winter, and shift into six-inch pots in February. Ventilate freely during the winter, and guard against thrip and over-watering. The plants should also be kept near the glass, and the foliage be sprinkled with flowers of sulphur if mildew makes its appearance.

GREENHOUSE AND STOVE.—Cuttings of stove and greenhouse



plants will bear a very brisk heat now, and may be shifted as fast as they make roots, and kept in quick growth. Use liquid manure to all plants showing bloom. Remove from the greenhouse to cold pits the stock of bedding plants wintered in that structure. Train melons and cucumbers carefully, and stop as they reach the top of their trellises. Keep the air moist about pines, and use sulphur fumes for red spider. Greenhouse, 55° night, 60° to 65° day. Stove collections, 65° night, 75° day. Fuchsias are growing finely now, and plenty of cuttings may be got without distressing the old plants; in fact, the stoppings of shoots will do, for it matters not how short and soft the cuttings are; they always root instantly if put into sand in a nice heat. It is no use to grow fuchsias slowly; let them have the warmest berth possible, with plenty of syringe and only a little air. Camellias out of bloom to have a higher temperature and a moist atmosphere, to promote the new growth. Any that seriously want a shift may have it now; but the general shifting is best delayed till the wood is ripe or ripening. Cinerarias are now coming to their full splendour, and must have constant attention. Neglect of watering will cause the lower leaves to shrivel, and too much water will cause the colours of the blooms to run. Use manure-water twice a week. Tie out specimens in good time. Those only just showing their trusses may have a shift, so as to form fine plants late in the season. Pelargoniums for exhibition require constant attention to keep the foliage in perfect health, and to tie out and train as needful. Give plenty of air to strong plants, and manure-water, rather weak, every five or six days. Shift young plants. Never stop and shift at the same time. Succulents are usually kept dry all the winter, and have supplies of water in very small quantities as they commence their seasonal growth. Though easily kept in windows and ordinary greenhouses, they rarely flower unless they have some special care at this time of year. If any of them want larger pots, they should now be shifted, and the soil used should be a mixture of lime rubbish, broken bricks, turfy loam, and a little cow-dung, with plenty of drainage crocks in the bottoms of the pots. As a rule, large pots are not favourable to their prosperity, so they should never be shifted unless the old soil is worn out and the plants have grown to a size out of proportion to the pots they are in. All the Cacti and Mesembryanthemums, etc., now stored on greenhouse shelves, should be dressed on the surface with rotten dung, and be placed over a moderate bottom-heat, with small supplies of water to set them growing. Plenty of light, plenty of water when in free growth, and a generous temperature, are requisite to produce a good bloom.

*Solanums for Conservatory Decoration.*—The cultivation of the scarlet-berried *Solanums* is so exceedingly simple that any one with ordinary appliances and ordinary skill may have a grand display of them in the autumn in the conservatory. There are several species and varieties which produce red berries; the one commonly grown hitherto has been *S. capsicastrum*; but far better, because it makes a bolder bush and bears larger berries, is Williams's *Hybridum compactum*. To get up a stock of this proceed as follows: Place an old

plant in a warm house and frequently syringe it. When the young shoots are two inches in length, take them off and dib them into sand in a heat of 60° to 70°. When rooted, pot them in light sandy compost, and give them a moderate heat until they begin to grow; or sow the seeds in light soil, and place in a steady heat. The present is the proper time to begin with either seeds or cuttings. From that time gradually inure them to ordinary greenhouse temperature and to fresh air, so as by degrees to have them quite hardy by the middle of May. Then plant them out in a piece of rich light soil, in the full sun, fifteen inches apart; give plenty of water all the summer, and slightly train them out, so as to form open heads. They will require to be twice stopped by nipping off the points of all the shoots in June, and after that must grow as they please. About the middle of September take them up very carefully and pot them. In this process the roots must be preserved from injury, and as much earth kept about them as possible. When potted, stake them out neatly; shade for a week, and after that keep them in the sunniest part of the greenhouse. If you follow this prescription, their appearance in November ought to be that of neat shrubs, two feet high and eighteen inches through, completely smothered with bright scarlet berries, full double the size of holly-berries.



## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

SELECT SHOWY HARDY AND HALF-HARDY  
ANNUALS FOR GARDEN DECORATION.

(The best for a small garden marked thus, \*.)

*Orange and Yellow*: *Erysimum Perowskianum*,\* *Eschscholtzia crocea*, *Helichrysum bracteatum*, *Lasthenia Californica*, *Leptosiphon aureus*, orange flowered African Marigold,\* *Dunnett's tall French Marigold*, *Crystal Palace Gem Nasturtium*,\* *Pearl Nasturtium*, *Portulacca aurantiaca*, *Tropæolum canariensis*,\* *Tagetes signates pumila*,\* *Waitzia grandiflora*, *Zinnia elegans fl. pl.*, yellow flowered. *Rose and purple*: *Acroclinium roseum*,\* *Calandrina grandiflora*, *Callirhoe involucrata*, *Purple Candytuft*, *Flesh-coloured Candytuft*, *Clarkia integripetala*, *Tom Thumb*,\* *Collinsia bartsiaefolia*, *C. grandiflora*,\* *Convolvulus major*, purple flowered,\* *C. minor*, purple flowered,\* *Datura fastuosa Huberiana*, *Godetia reptans purpurea*, *Godetia Whitneyi*,\* *Helichrysum macranthum*,\* *Purple-flowered Jacobæa*, *Leptosiphon androsaceus*, *Leptosiphon roseus*,\* *Linaria bipartita splendida*,\* *Lupinus Dunnetti*, *Martynia fragrans*, *Mathiola tricuspidata*,\* *Rhodanthe atrosanguinea*,\* *R. Manglesi*, *Saponaria calabrica*, *Silene pendula*, *Whitlavia grandiflora*, *Zinnia elegans, fl. pl.*, purple flowered. *Scarlet, Red, and Crimson*: *Dunnett's Crimson Candytuft*,\* *Chrysanthemum Burridgeanum*, *C. carminatum atrococcineum*,\* *Coreopsis atrosanguinea*, *C. nigra speciosa*,\* *Eucharidium grandiflorum*, *Godetia rubicunda splendens*,\* *Grammanthes gentianoides*, *Helichrysum nanum atrosanguineum*,\* *Crimson-flowered Jacobæa*, *Linum grandiflorum rubrum*,\* *Lupinus hybridus atrococcineus*, *Tom Thumb Nasturtium*,\* *King Theodore Nasturtium*, *Invincible Scarlet Sweet Pea*,\* *Phlox Drummondii atrococcinea*, *P. D. Napoleon III.*, *P. D. Heynholdii*, *P. D. Radowitzii*,\* *Portulacca splendens*, *P. Thellusoni*, *Salpiglossis coccinea*, *Viscaria cardinalis*,\* *V. splendens*, *Zinnia*

elegans, fl. pl., scarlet flowered.\* *White*: *Acroclinium album*, *Brachycome iberidifolia alba*, *White Candytuft*,\* *Chrysanthemum Dunnetti*, *Clarkia integripetala alba plena*,\* *Godetia alba*, *White-flowered Sweet Pea*, *Saponaria calabrica alba*, *Silene pendula alba*, *Zinnia elegans fl. pl.*, white flowered. *Blue*: *Asperula azurea setosa*,\* *Brachycome iberidifolia*, *Convolvulus major*, blue flowered,\* *C. minor*, blue flowered,\* *Gilia minima cœrulea*, *Kaulfussia amelloides*, *Linum grandiflorum*,\* *Lupinus subcarnosus*, *Nemophila insignis*,\* *N. maculata*.

### A SELECTION OF KITCHEN-GARDEN SEEDS AND ROOTS.

*Asparagus*.—Grayson's Giant.

*Broad Beans*.—Mazagan for the first crop; Beck's Green Gem and Royal Dwarf Cluster for growing in frames and pots; Common Long-pod for a great crop; Taylor's Broad and Green Windsor for finest quality; Monarch for exhibition.

*Beet*.—Nutting's Dwarf Red. Henderson's Pine-apple Short-top; for shallow soils, Egyptian Turnip-rooted. For the flower-garden, Osborn's Dark, and Dell's New Crimson Leaf.

*Brussels Sprouts*.—Imported, Scrymger's Giant.

*Borecole*.—Common Green Scotch; Gibbs's Parsley-curved is extremely handsome; Cottagers' Kale, very hardy and productive; Chou de Milan, tender, but delicious; Albert Sprouts come in when other sorts are scarce.

*Broccoli*.—For a succession, Grainger's Autumn White, Lauder's Superb Protecting, Late Goshen, Snow's Winter White, Early Penzance, Cooling's Matchless, Beck's Dwarf White, Hammond's Imperial Hardy, Cattell's Eclipse, Carter's Late Summer, Purple Sprouting.

*Cauliflower*.—London White, Asiatic, Lenormand's.

*Carrot*.—For frames, French Short Horn; for early sowing on slopes, Common Scarlet Short Horn; for main crop, Surrey and Altringham; for shallow soils, James's Intermediate.

*Cabbage*.—Little Pixie, Atkins's Matchless, and Rosette Colewort, are the best to sow at all seasons, and to cut any size; the best for heavy crops are Enfield Market, Nonpareil, Cattell's Reliance, and Wheeler's Imperial.

*Celery*.—Ivery's Nonsuch Red, and Turner's Incomparable White, for fine quality; Manchester Red and Cole's Crystal White for large crops.

*Cucumber*.—The best for winter and early spring use are Rollisson's Telegraph and Masters' Prolific; for general usefulness, Blue Gown, Cuthill's Black Spine, and Hamilton's Market Favourite; for exhibition, Kirklee's Hall Defiance, Hamilton's Invincible, Model of Perfection, and Abbey's Garden Prize.

*Capsicum*.—Long Red, Long Yellow, and Long Red Chili are the most useful.

*Endive*.—Green Curled, Fraser's Improved, Batavian, Digswell Prize, and New Moss-curved.

*Kidney Beans*.—For pot culture the best are Sir Joseph Paxton, Fulmer's Forcing and Newington Wonder; for main crop, Newington Wonder, Negro, and Red Speckled. The best Runners are common Scarlet and Carter's Champion. The last is very fine.

*Leek*.—Musselburg, Ayton Castle.

*Lettuce*.—For autumn sowing to cut in winter and spring, Hammersmith and Brown Cos; for summer use, Tom Thumb Cabbage, All the Year Round Cabbage, Bath Cos, Sugar-loaf Cos, Paris White Cos.

*Melon*.—For pot culture, Sutton's Tom Thumb and Turner's Scarlet Gem; for frame and house culture, green flesh, The Sultan, Trentham Hybrid, Colston Bassett, Burghley Park; scarlet flesh, Scarlet Gem, Malvern Hall.

*Onion*.—For frames and warm slopes, also for pickling, Early Nocera, Paris Silver Skin; main crop for storing, Reading, Deptford, James's Keeping, Bedfordshire Champion; for exhibition, White Spanish, Blood Red, Trebons, Giant Madeira, and for autumn sowing, Red and White Tripoli, Globe Tripoli.

*Parsnips*.—Hollow Crown, Student.

*Peas*.—First and second Early, Sutton's Ringleader, Taber's Perfection, Little Gem, Alpha, Advancer (rather tender in constitution, but invaluable), Nelson's Vanguard, Paradise Marrow; main crop and long gathering, Fortyfold, McLean's Wonderful, Veitch's Perfection, Laxton's Supreme, Quality and Quantity, Ne Plus Ultra, British Queen; for pot culture, Little Gem, Tom Thumb.

April.



*Parsley*.—Dickson's Trehle-curved and Veitch's Splendid-curved.

*Potatoes*.—Veitch's Improved Ashleaf, Myatt's Ashleaf, Haigh's Kidney, Dalmahoy, Baron's Perfection, Flour-ball, Milky White, Wellington, Paterson's Victoria, Rintoul's Early White Don, Gryffe Castle Seedling, Fluke, Sutton's Berkshire Kidney, Almond's Yorkshire Hero.

*Radish*.—For frames, Turnip (red and white), Wood's Early Frame; for general use, Beck's Scarlet Short Top, Scarlet Olive-shaped, White Olive-shaped.

*Rhubarb*.—Dancer's Early Scarlet, Myatt's Victoria, Mitchell's Royal Albert, Martin's St. Johnston's.

*Spinach*.—All the sorts in cultivation are good, but the best are Round-seeded for sowing in spring, and Prickly-seeded, for sowing in summer and autumn. Spinach Beet is very productive, and lasts the whole season. New Zealand Spinach is a fine vegetable for hot dry soils.

*Tomatoes*.—Large Red, Earley's Defiance, General Grant.

*Turnip*.—To sow in spring, Early White Strap-leaved, Short Top Six-weeks, Polly Nonsuch; to sow in summer, American Stone, Beck's Golden Stone, and White Dutch; to sow in autumn, Jersey Navet, Green Top Six-weeks, Chirk Castle.

*Vegetable Marrow*.—The most delicate and elegant is Hibberd's Prolific; the best for cottage gardens is Large Cream.

## HORTICULTURAL AFFAIRS.

**ROYAL HORTICULTURAL SOCIETY'S SPRING SHOWS.**—Two exhibitions of spring flowers have been held at South Kensington during the past month. The first consisted chiefly of groups of miscellaneous plants, and the second was the Hyacinth Show, which we shall probably deal with more fully next month. At the first meeting several fine groups of Orchids were shown, the most important specimen being that of *Phalænopsis Schilleriana*, which had two magnificent spikes, on which were upwards of two hundred of its lovely blooms. This came from the gardens of R. Miln, Esq., of Arbroath, and was awarded the silver Flora medal. Prizes were offered for Camellias, but there was only the merest shadow of competition, for one stand of flowers and one collection of plants only were exhibited.

**ROYAL BOTANIC SOCIETY'S SPRING SHOW.**—A very attractive exhibition of Hyacinths and spring flowers was held in the gardens of this Society, in the Regent's Park, on the 13th of March. Several new plants of considerable merit were also exhibited.

**BIRMINGHAM SHOW.**—The provincial exhibition of the Royal Horticultural Society for the present year, which is to be held at Birmingham in June next, bids fair to be one of the best country shows the Society has yet held. The display of dinner-table decorations to be judged and exhibited by gas-light promises to be one of its most important and attractive features. Hitherto dinner-table decorations, although almost invariably seen when upon the table under the influence of artificial light, have been judged by daylight, and the most serious mistakes in the selection of the flowers have consequently been made. To place this matter upon a proper footing, the Editor of the "Gardeners' Magazine" made a suggestion which has been acted upon by the committee, that the table-decorations should be judged by gas-light, and he has contributed the sum of £25 towards the prizes for them. The conditions of competition are not announced as yet, but as soon as they are, we shall direct special attention to them.

**THE INEPUISABLE STRAWBERRY.**—M. Mabile, of Limoges (Haute-Vienne), has just made a discovery, which we consider very important, if its results at all correspond to its promises. He has obtained from the seed of the strawberry, *Ananas du Chili*, crossed with the fine English variety, *Victoria* (Trollop's), a large continuously-bearing strawberry, which produces fruit as large as the English or American kinds, and continues to bear up to the first frosts. A large variety, said to be continuously-bearing, had been already raised (by M. Gloede, I think), but of this the leaves alone were "continuously" produced. That of M. Mabile, which we have ourselves seen and tasted, is quite a different thing. We do not hesitate to strongly recommend it, not only for its intrinsic value, but because it will, with-



out doubt, prove the parent of large-fruited and really continuously-bearing varieties, superior to itself. The general consumption of this excellent fruit is so desirable that we must commend every effort to increase it, and render it accessible to all. In connection with this subject we have just read the following in the *Echo du Parlement Belge* :—"Within the last few days an exhibition of strawberries has been opened at Boskoop (Holland). One lot, containing fourteen strawberries, weighed over a pound." This comes very near the "twelve to the pound" of M. Mahille. We hope that it may become as excellent and productive as the Caprons of the marshes of St. Land, at Angers, which we used to purchase at the rate of twopence halfpenny the basket of five pounds.—*Ed. André, in L'Illustration Horticole.*

## TO CORRESPONDENTS.

UNFRUITFUL PEAR-TREE—PAPER-MILLS WASTE.—*Amateur, Galway*, writes as follows :—I have a bush of *Williams's Bon Chretien* on the quince. It is planted since 1868, when I obtained it from Mr. Rivers, on a good border, within four feet of a south wall; yet it has made scarcely any growth—three and a half feet high, and not one and a half feet through in the widest part, with not more than three or four arms or branches. It has blossomed, but never bore fruit, though protected, and while a *Marie Louise* near it had eighteen fruit. Now, Gressent, in his "Arboriculture Fruitière," says of this variety, "It is very fertile, but is weak on the quince, and should be grafted on the free (pear) stock, or if on the quince, it should be *affranchi*, or 'emancipated.'" This operation is elsewhere recommended for weak-growing kinds, in order to bring them into a fruiting state through the agency of the quince, and then to give them by emancipation the strength to bear well. It consists in making vertical slits in the bark, just above the junction of the graft, and heaping rich compost up about this, so as to make the scion emit roots. These roots flourish at the expense of the quince, to the final extinction of the latter. I have made a poor attempt at representing the process, but I hope it will give you some idea of what I mean, especially as it is more than probable it is not new to you. In fact, it is *Home Rule*, or rather *Home Root*, applied to pomology. Would you recommend me to try it on my *Bon Chrétien*?—[*Williams's Bon Chrétien* is a free-growing, fruitful variety of the finest quality, and your tree ought to behave better than it does. It is a mistake to graft it on the quince, but Mr. Rivers has a great fancy for starving stocks, as if cherishing the opinion that a fruit-tree must be fruitful in proportion to its smallness. It may be, too, that yours is grafted on the wrong sort of quince, for there are good and bad quinces in use. If the tree were ours, we should take it up, and throw it into the yard as a pea-stick; but as you would not like to do that, we advise you to adopt the emancipating system, which we have practised with advantage.] Last spring I sent you some seed of a cucurbitaceous fruit, saved from a fruit bought in Paris in August, 1870. I should like to know did you try the seeds. They did not fruit with me, and I have some yet. The parent fruit was a dark green, flesh a curious red, between a blood and a brick-red, and it was sold retail at ten centimes for a very small slice. The seeds were the size of large gourd seeds, but much thicker, and as black as pear-pips. I have lately received from Ghent seeds of gourds *Musquée de Marseilles* and *Sucrière de Bresil*; of melon, *Sucrin de Tours*. How should I treat them? Also Chinese yam. Have you anything to add to what is contained on this head in "Profitable Gardening." [We have no recollection of the seeds you sent, but, in truth, we receive so many things of the kind, that we are compelled to forget nine-tenths of them, and yet occasionally a welcome gift in that way arrives. Your melon seeds should have been sown a month ago, but there is still time for a crop. Sow on a hotbed, and keep them going in the same way as cucumbers in frames, but with more heat, full exposure to sunshine, and less humidity than cucumbers require. Melons will not thrive in a temperature below 70°. Plant the thin end of the Chinese yam. It thrives in deep sandy soil, and requires stakes to support the twining stems.] In the manufacture of paper from straw, the straw is boiled in water containing about one stone of caustic soda to one cwt. of straw. It is boiled till the fibres are disintegrated and form a pulp.

The liquor that is *all* drained off should be useful for manure containing (perhaps?) silicate of soda (?) and other chemicals. Can you advise me as to the uses that might be made of this liquor—(1) in its pure state; (2) diluted with water; (3) mixed with composts, for fruit, flowers, or vegetables? [Probably a good liquid manure for grass land, but very much depends on the nature of the "other chemicals."] Where could I obtain seed of the new ivies, or are they to be had at all? [Seeds of new ivies will not reproduce the plants they came from, and the climbing kinds do not produce seed. Mr. Turner, of the Royal Nurseries, Slough, obtained from us, some few years ago, a collection of ivies, on purpose to supply the public, as it is our rule never to trade in plants or seeds.] How long would it be from the sowing of rose-seed (H. P.'s) to the flowering of the plants? [From three months to three years.]

*A. H., Upper Norwood*, will greatly oblige by communicating as may be convenient and agreeable.

**GLADIOLUS CULTURE.**—*Adam*.—The book you inquire about is published by Houlston and Co., price 1s. It is able, prophetic, and dogmatic. M. E. Verdier, of Gare d'Ivray, Paris, is one of the largest foreign traders in gladioli. An article by him on the culture of gladioli appeared in the *FLORAL WORLD* for March, 1867. An article on the same subject, accompanied with a selection of varieties, appeared in the *FLORAL WORLD* for October, 1871.

**VINES IN POTS.**—*M. R. C. S. E.*—The vines will do very well with the pots placed under the stage, provided means are resorted to for preventing the soil becoming saturated with superfluous water from the plants upon the stage. At the same time, they must not be forgotten because the pots are out of sight, and be allowed to suffer from drought. The vines should be pruned back to within the first or second spur from the base, and the strongest bud selected for training up the roof. If the vines bleed freely from the wound, paint the wound with the patent "knotting," which can be obtained from all oil and colour shops. In applying the knotting, care must be taken to prevent its being smeared over the buds.

**TRANSPLANTING YEW.**—*J. H.*—The tree may be transplanted with safety, if done with care. September and October will be the best months for the work. After a dry summer, the last-mentioned month will be the most suitable.

**CYRTOMIUM CAROTIDEUM.**—A frond of a fern with the above name has been sent to me, purporting to be the frond of a fern which does well in the dwelling-house, and does not seem to suffer from gas. I cannot think that the name can be right—at least the second name. The frond is dark green and leathery like *Cyrtomium falcatum*. Can you help me to guess at the name? I want to obtain a plant, and I am sure no nurseryman would know what to send.—*Fairly Puzzled*. [*Cyrtomium caryotideum* is a fine cool-house fern, with stout leaves, likely to stand gas well. You have the name right.]

**LOOKER'S PROPAGATING BOXES.**—*An Amateur*.—The "Propagating Boxes" are very strong, and there is no fear of their being broken accidentally. The cuttings cannot be struck at this season of the year without the assistance of artificial heat. The smaller-sized propagating frames are as cheap as it is possible to make them.

*G. R. P.*—The suckers should be allowed to remain. If the seed of the *Begonia* is sown at once, the plants may be expected to flower satisfactorily next year. There must be no delay in sowing the seed.

**FLOWERS FOR BOUQUETS.**—*E. G. P.*—Your question is more difficult to answer than may at first be apparent, for you do not say a word about the conveniences you have for plant-growing, and the season of the year the flowers will be required. The "best white flower" is undoubtedly the "orange blossom," but it is hardly likely that you require to be told that *Stephanotis floribunda*, *Bouvardia longiflora*, and *B. jasminoides*, are all first-rate for the purpose, and probably the best that could be grown. *Leschenaultia formosa* and *Plumbago capense* are both good blue-flowering greenhouse plants; the latter will, perhaps, prove the most useful.

**CYCLAMENS.**—*W. Box, Huddersfield*.—The directions to which you refer for the rapid cultivation of these beautiful flowers appeared in the *FLORAL WORLD* for January, 1868. The number can, we believe, be obtained from the publishers, Messrs. Groombridge and Sons, 5, Paternoster Row, E.C.





VARIETIES OF TOMATOES.



## SELECT TOMATOES.

*(With Coloured Illustration of Seven Varieties.)*

URING the summer of 1871, a large and interesting collection of Tomatoes was grown in the experimental garden at Stoke Newington, from seed supplied by Messrs. Sutton & Sons, of Reading. For the purpose of determining the merits of the several varieties, and the distinctions which exist between such varieties as bear a close resemblance to each other, notes were made at various stages of growth. These notes are embodied in the report made use of by Mr. Gray in his very excellent and practical paper on the cultivation of Tomatoes in pots, which appears in the present number. It is not necessary to add to what Mr. Gray says, with respect to their cultivation, but we are bound to say that pot culture is worthy of the most attentive consideration as a mode of production merely, for in the wet and sunless summer of 1860 we obtained immense crops of fruit, of the finest quality, from pot-plants in a lean-to house, and none at all from those planted out in the usual way. Curiously enough, we directed special attention to the cultivation of Tomatoes in pots in the FLORAL WORLD for February, 1860; and in the autumn of the same year we received a large number of letters from correspondents, who had followed our advice, expressing their satisfaction with that mode of culture. By growing them in pots, as advised by Mr. Gray, and keeping them in the orchard-house, crops in advance of those obtained from walls or pot specimens out of doors may be obtained.

Considering the popularity which the Tomato has recently acquired, we have no doubt that it will be cultivated very generally under glass in a few years hence, and that early crops will be looked upon as of as much importance as early crops of French beans, potatoes, and other vegetables.

The results of our trial of Tomatoes last summer shows that for exhibition purposes *Hepper's Goliath* and the *Trophy* are the two best—the first for early exhibitions, and the last for those held late in the season; and that for general productiveness and high quality, *Earley's Defiance* is first-rate and one of the very best, more especially for pot culture. The *Large Red* is also very productive, and produces handsome fruit of large size. The *Orangefield* and *Powell's Early* are both good, although not equal to the preceding. The *Pear-shaped*, *Cherry-shaped* (red and yellow) are very ornamental, and the fruit is useful for culinary purposes in the same way as the other varieties. The *Red Currant* and *Yellow Currant* are very ornamental, as the fruit is produced very freely in large bunches. The *Upright*, or *DeLaye*, is so late in ripening as to be comparatively worthless, and the *Common Yellow* is also late and not desirable because of its objectionable colour when cooked.

The varieties illustrated in the plate are the *Red* and *Yellow*

*Cherry-shaped*, at the bottom on the right-hand side; the *Pear-shaped* in the centre, immediately above; the *Red* and *Yellow Currant* at the top; and *Earley's Defiance*, the large red fruit on the left-hand side.

S. H.

## HOW TO RAISE NEW VERBENAS.

BY HENRY ECKFORD,

Head Gardener, Coleshill House, Berks.



RAISING seedling Verbenas is perhaps one of the most interesting operations in which the amateur fond of flowers could possibly engage. A certain amount of patience and steady perseverance is necessary, because it is just possible that some difficulty will be experienced in raising varieties that are perfectly distinct or superior to others already in cultivation. Those who raise them from seed for the purpose of flower garden decoration, more especially for planting in the mixed-border, will receive an ample reward, for a pinch of good seed will yield a considerable number of really meritorious varieties, some of which may perhaps possess colours altogether new. Now and then a trump will turn up, but before the amateur can hope to be a raiser of varieties possessing sufficient merit to justify their being distributed in the ordinary course of trade, he must devote some considerable attention to the matter, so as to become thoroughly acquainted with the general character and peculiarities of the leading varieties, and further, he must pursue a systematic course in saving the seed. I propose in this communication to give all the information it is possible to give upon the subject, and by following the rules here laid down, the amateur will not experience a very considerable amount of difficulty in becoming a successful raiser.

To ensure a race of varieties that will be a credit to the raiser, the seed must of necessity be raised at home, and the present moment is therefore a most favourable opportunity for commencing. The first step is to procure the finest varieties obtainable, so as to save one or two seasons' work. It is also important to determine at the commencement whether it is desired to raise varieties for bedding, or for exhibition, either as pot specimens or cut blooms. If for bedding, a compact habit, a floriferous character and flowers of the most brilliant hues, must be considered of the first importance. Large flowers of the finest form are of less importance than either of the qualities enumerated above, but, if in combination with them, it will be a decided advantage. On the other hand, those intended for exhibition as cut blooms should have flowers large in size and of the most perfect form, and stout in substance. Moreover, they should be borne in trusses of large size; the colours must be clear

and distinct, but intermediate shades are admissible. Habit may be considered of the least importance, but a *Verbena*, unless it has a thoroughly good habit, is, in my opinion, of little worth. As I stated in the *FLORAL WORLD* for April, 1871, I began to improve the habit first, and then proceeded, as it were, to add flowers of good quality. Varieties intended for specimen culture must have a good habit, and flowers of the finest quality. When these points are settled, the raiser will know exactly what to aim at, and if either of the seedlings possess any peculiarity which it is desirable to perpetuate, yet not of sufficient merit to justify its being considered first-rate, it should be preserved, and some variety possessing the good qualities of which it is deficient fertilized with its pollen.

When the work of raising seedlings is proceeded with in a systematic manner, the varieties from which it is desired to save seed will require fertilizing with pollen from other good varieties; if, on the other hand, seedlings of average merit will satisfy the raiser, a bed should be planted with first-class sorts, and the work of fertilization left to insect agency. The bed should be in a sunny position, as the seed will then be under more favourable conditions for becoming thoroughly matured. A sharp look out must of course be kept, and the seed gathered as soon as it is ripe, to prevent any loss.

As seedlings raised early in the season will commence to flower rather early in the summer, and continue in bloom until late in the autumn, the seed should be sown early in March. It is by no means a difficult task to raise the seedlings, yet a considerable amount of attention is necessary, until the plants are hardened off. It should be sown in seed-pans prepared by first placing a layer of crocks in the bottom, and then filling them with a light rich compost, consisting of leaf-mould, friable loam, and silver-sand. Previous to sowing the seed, make the surface rather firm and perfectly level, to insure all the seed being buried the same depth, and cover lightly with a thin layer of fine sandy soil. Let the soil be moderately moist, and, if necessary, sprinkle it before the seed is sown; and a light sprinkle will be beneficial afterwards.

To insure a rapid germination of the seed, place the pans in a temperature of about 65°. The best place for the seed-pans is undoubtedly an early vinery, as the humid atmosphere, so essential to the health of the vines, appears to be highly conducive to the growth of the seedling *Verbenas*. A high temperature is not necessary for any length of time; therefore, as soon as they are large enough to handle conveniently, prick them off into shallow boxes filled with a mixture of loam, leaf-mould, manure rotted into fine powder, and sharp sand. After they are pricked off, leave them in the vinery for a short time; but they must not remain any longer than is required for their becoming established, or they will become weakened in constitution, and probably be infested with red spider. Therefore, as soon as they are nicely rooted into the new soil, remove them to a cold frame, and keep rather close for a few days, so as to avoid exposing them to the injurious effects of a sudden check. The frame must, however, be ventilated freely when it can be done with

safety, and the lights should be drawn off altogether when there is occasion to apprehend danger from frost.

Early planting is of considerable importance, and the strongest of the seedlings should be planted out in the early part of May, as there will be no danger of their being injured by frost, provided they were well hardened off previously. Planted thus early in a bed of moderately good soil, they will commence to flower early in the season, and make a grand display throughout the summer. Seedlings raised simply for making a display during the summer season can all grow together until the autumn, and the best be then propagated; but if it is intended to save seed, the worst should be weeded out and destroyed as soon as their true character can be seen, to prevent the flowers from which it is desired to save seed being fertilized by the bees with pollen taken from them.

## TOMATOES AS DECORATIVE PLANTS.

BY GEORGE GRAY,

Head Gardener, Ewell Castle.



THE fruit of the Tomato is so showy and attractive that it may well claim to take high rank amongst our ornamental plants. Tomatoes will ever be considered of the most importance for their usefulness, but as they can be employed in the decoration of the conservatory, when the fruit is ripe, without its being deteriorated in quality, we are justly entitled to direct special attention to their value as decorative plants, and to say that they should be grown more extensively for the conservatory than is the case at present. This point is especially worthy of the attention of those who have small gardens and a limited amount of glass, because if they can grow plants sufficiently ornamental for the decoration of the conservatory, which will yield them a large quantity of fruit of the utmost value in the kitchen, it must be highly advantageous to them to do so. It must certainly be an additional gratification to them to know, when enjoying the beauty of the crimson and golden fruit upon the plants, that they will be rewarded hereafter, in the shape of sauce, etc., with an ample interest for all the labour and attention bestowed upon the cultivation of the specimens. To render Tomatoes available for decorative purposes they must be grown in pots, which, as pointed out in these pages some years since, by the Editor, is a comparatively easy task.

One of the most important points to ensure success is to begin rather early, and to take such steps as are necessary to prevent the roots being confined too much before the plants are put in the pots in which they are to fruit. By this means strong plants are secured early in the season, and they consequently have a much longer period in which to bring the crop to maturity. Now, supposing them



to be well established, and in small pots, at this moment, they should be shifted into pots quite two sizes larger. Then as soon as these are well filled with roots, transfer them to the pots in which they are to fruit, which should, as a rule, be either ten or twelve inches in diameter. The pots must be properly drained, because liberal supplies of water will be required when the plants are in full growth, and unless means exist for the superfluous portion to escape quickly, the soil will soon become sour and the tips of a large proportion of the roots will probably perish.

A rather rich and friable compost is also essential, and in practice it will be found that a mixture of sound turfy loam and well-



Tomato, Hoop-training.

decayed manure, at the rate of three parts of the former to one of the latter, will form a most excellent compost. After the first shift, the compost should be used in a rather lumpy state, and every particle of fibrous matter in the loam carefully retained.

As they are very tender in constitution, they must receive the protection of a frame or greenhouse until the end of May or the first week in June, according to the season. They must not be coddled during the earlier stages of growth, and for that reason ventilate the frame freely, or, if in the greenhouse, place them near the glass and where they will enjoy a full share of air. When out of doors, stand the pots upon a bed of coal-ashes, or on a thin layer of well-rotted manure upon a hard bottom, in the warmest and most sheltered

position the garden affords. It will be an advantage if they can be placed along the front of a greenhouse, or on a south border, where they will be fully exposed to the influence of the sun, and, at the same time, protected from northerly winds.

Whilst pointing out the desirability of their having a warm situation, it is proper to remark that Tomatoes, when in pots, can be grown in the open quarters much more satisfactorily than when planted out. This is worth remembering, because it is not every amateur who has a south wall or fence against which to plant and train them. Clear water will suffice until the fruit is formed and begins to swell off, and then weak liquid manure may be applied once or twice a week.

In recommending the liberal supplies of water, it must not be



Tomato, Trellis-training.

for a moment understood that it is desirable to keep the soil in a constant state of saturation.

The manner in which the growth of pot specimens should be stopped and trained does not differ very materially from that explained in the *FLORAL WORLD* for June, 1871, for those planted out: the main branches require supporting with neat stakes, and stopping when about thirty inches in height, and the laterals should be stopped immediately above the flower-truss. All the lateral growth must be removed as soon as sufficient side-shoots are produced, and as much fruit set as it is considered the plant will be able to support. The fruit-bearing laterals require training out to expose the fruit to the light as much as possible, and it is impossible to over-estimate the importance of removing all superfluous growth early, to

prevent overcrowding. The directions, with respect to stopping and training, hold good to all the varieties but one, and that is *Earley's Defiance*, which is the most valuable of all for pot culture. This variety requires no stopping, as the main shoots produce laterals at every few inches on either side of the stem, and these bear from one to three large trusses of fruit each. We have it on the authority of Mr. Hibberd, to whom I am indebted for the descriptive list of varieties, that the raiser obtained last year as much as 42 lbs. of ripe fruit from two plants grown in one nine-inch pot; these plants were not stopped at all, but the growth was allowed to extend over the side of the pot, and spread over the surface of the vine border upon which the pots were placed—they, in fact, received no attention beyond being supplied with water. All the other varieties, if allowed to grow in the same manner, would have run wild, and been unproductive.

The accompanying woodcuts from Messrs. Hooper's "Gardening Guide," illustrate two distinct styles of training; these will explain themselves. But it is necessary to say that when the specimens are intended for conservatory decoration, the stakes must be fixed in the pots; the growth may also be supported with stout pea-sticks inserted round the outside of the pot.

The Trophy Tomato has acquired an immense popularity in America, and fruit weighing over three pounds has been obtained. The manner in which these gigantic fruit have been produced is thus described by an American correspondent when sending seed to a friend in this country: "Enclosed, find a little seed of the Trophy Tomato (headquarters seed). This is a trophy indeed: we had them last summer three and a half pounds' weight, smooth and solid as a chunk of beef. If you sow the seed in a hotbed as soon as received, put into small pots when an inch and a half high, and grow as fast as possible, by shifting, etc., until planting-out time, then plant in almost clear sand under a south wall: the sand will throw them into bearing. When you see tomatoes about half the size of a marble, pinch out the ends of the shoots, also pinch off, and keep pinched off, all laterals, which will throw the strength of the plant into the fruit; and if the weather should be dry, water with liquid manure, and sprinkle the plants occasionally at night with liquid manure, and you will see tomatoes as is tomatoes, as the boys say here. But if you should think the tomatoes have not time to ripen, just take hold of the stems of the plants and pull them very near—not quite—out by the roots: this will hasten ripening by three weeks. It is the best and surest, to have your plants well in flower and fruit-setting at planting-out time. We grow them by the acre—some by the hundred acres; but for our very earliest we must grow them in pots. Last summer I turned them out of six-inch pots all in flower and small tomatoes. I suppose if you could exhibit half a dozen of about three pounds each, you would have people staring at you, and want one hundred pounds of seed to meet the demand, which would be a fortune for you at once. Well, I have told you how to do it; try. Last season seeds of this kind sold at twenty-five cents (one shilling English) each little seed."

May.

It seems strange that if each seed was worth a shilling in America last year, that the seedsmen on this side of the Atlantic were able to offer it at a trifle above the price of the common sorts. Mr. Hibberd's descriptive list of varieties, grown last year in the experimental garden at Stoke Newington, is as follows:—

*Common Red*.—This well-known and eminently useful plant, is robust in growth and rough in appearance. It is a coarse plant, and comparatively unproductive when allowed to run rampant, but very fruitful if judiciously stopped and slightly checked in growth, without in any material degree reducing its vigour. The fruit is large, weighing from half a pound to a pound each, flattened in form, deeply corrugated around the stalk, and often divided by deep sutures, which give the upper side a cockscomb shape. This ripens as early as any, acquiring a fine deep red colour; but is surpassed in beauty and habit of growth by several garden varieties.

*Keze's Prolific* is an improved form of Common Red, the same in growth, but fruiting more freely, and the fruit less deeply cleft and divided.

*Large Red* is a decided improvement; in growth differing from the common sort in being less robust and coarse. The fruit when well grown resembles in form a "Turk's-cap" gourd. It is deeply and irregularly corrugated around the stalk, the crown smooth, and slightly open in the centre; the colour a fine deep orange-red. The fruits are produced in large handsome clusters, and the plant makes less growth than any other variety which produces fruit of equal size.

*Hepper's Goliath*.—This is a selection from the Common Red, obtained by Mr. Hepper, gardener at the Elms, Acton. It is more robust in growth than the original; the fruit is larger and less plentifully produced, but the gross weight is about the same, increase of size making ample amends for the reduction of the numbers. A good variety for exhibition.

*Trophy*.—In growth this differs from the Common Red, the stems being thicker and the joints more distant, or, in garden phraseology, it is "long-jointed." The fruit is of medium size, slightly corrugated, but frequently quite smooth, and the crown particularly so; in colour brilliant orange-red, and particularly handsome and distinct. It is less fruitful than any other variety in the section; but the fruit is more solid than any, so that, when matched with others of equal size, those of the Trophy will more than turn the scale against any of them.

*Orangefield*.—This is a distinct and handsome Tomato. The growth resembles that of Common Red, but is less robust; does not require stopping. The fruit resembles in shape and size a large Orleans plum, is quite smooth, without corrugations or sutures; the colour a brilliant orange-red. One of the most elegant, but not the most fruitful, though the fruit is particularly solid, and is produced in fair quantity, but less plentiful than that of some others.

*Earley's Defiance*.—A very valuable variety, obtained through systematic crossing by Mr. Earley, of the Gardeus, Valentines, near Ilford. In growth more wiry than Common Red, and, as it produces



fruit at every joint, it should never be stopped. The fruits occur in large clusters; they are of medium size, depressed spherical, remarkably even, the only corrugations occurring near the stalk and being very slight. The colour is a fine deep red, the skin very glossy. This ripens early, and all the fruits in a cluster ripen together, so that large bunches instead of single fruits may be cut. After a careful comparison of all the varieties grown, we have arrived at the conclusion that Earley's Defiance is the best of all. As a proof of its adaptability for pot culture, Mr. Earley obtained from two plants in one nine-inch pot 42 lbs. of fruit in the past summer.

*Powell's Early*.—In growth resembling Common Red; fruit smallish and round, smooth and handsome; colour a fine bright orange-red. It is not particularly early, but is good and worth growing.

*Common Yellow*.—This is in all respects the same as the Common Red, but the fruit ripens a deep reddish orange-colour, and is somewhat later in attaining perfection.

*Upright or De Laye*.—A very distinct and fine variety, stout and upright in growth, and as much like a tree-potato as a tree-tomato. The leaves are hard and rigid, deeply and elegantly wrinkled, and the character of the plant peculiar throughout, and, though coarse, yet bold and handsome; fruit of medium size, flattish, elegantly corrugated around the stalk, the crown marked with nipple-like prominences. When ripe, of a fine deep-red colour, but too apt to refuse to ripen, this being the latest of all the varieties. The Tomato de Laye was raised by M. Grenier, gardener to M. de Fleurieux, of the Château de Laye, from which its name is derived. It is less productive than other of the large red series, and its lateness renders it but ill adapted for even the best climates of Great Britain.

*Pear-shaped*.—In growth light and elegant, the leaves being smallish, the stems long and wiry, travelling far. Fruit in form resembling a muscat grape, but considerably larger when well grown; the colour a fine deep red. A handsome and useful Tomato.

*Cherry-shaped*.—The plant is spare in growth, the stems wiry, travelling far. The fruit is in shape and size like a Morello cherry, of a fine dark-red colour, most abundantly produced in large handsome clusters, which have the demerit that they do not ripen off simultaneously in each bunch. A handsome plant, well adapted for decorative purposes, and equally useful with the large kinds for sauces and preserves.

*Yellow Cherry-shaped*.—The same in all respects as the last, but the fruit ripens off a fine deep-yellow colour tinged with red.

*Red Currant*.—The plant is very light and wiry in growth, the leaves small and of a bright grass-green colour. Fruit in large loose bunches of the same smooth spherical form as a red currant, but about twice the size. An elegant and showy plant, but the fruit too nearly resembles that of the woody nightshade (*Solanum Dulcamara*) to afford unmixed pleasure.


*Yellow Currant*.—The same as the last, save that the fruit ripens a fine deep-yellow colour.

Permit me to add that seed of all the varieties here described

May.

can be obtained from any of the leading seedsmen, and that all inquiries respecting price, etc., must be addressed to them, for my avocations will not permit me to answer a number of letters privately upon matters of this kind. The addresses of firms who will be able to supply seed, will be found on reference to the advertisement pages of the past few months.

### KIDNEY BEANS.

N my opinion, none of the summer vegetables are more profitable than Kidney Beans, when they have justice done to them. They are exceedingly productive, and can be depended upon in seasons when peas are burnt up with heat and drought. In point of quality they rank high, being nearly or quite equal to peas, although of course they differ so much that a dish of each can be put upon the table at the same time. For small gardens they are certainly of more value than peas, and where there is not space for growing a full supply of both, the beans should have the preference, because of their greater productiveness.

The tall and dwarf varieties may be considered of equal importance, the former for furnishing the mid-season supply, and the latter for the early and late supply. The latter are also exceedingly valuable where there is not sufficient space for cultivating the tall sorts, and also in hot seasons, when few other vegetables are able to exist. In point of productiveness, in ordinary seasons, there can be no doubt that the tall sorts bear off the palm, and wherever the room can be found for them a considerable breadth should be sown.

To keep up a constant supply throughout the season, successions of the dwarf sorts should be made in the following order :—*Fulmer's Forcing* and *Newington Wonder*, the first week in May ; *Pale Dun* the second week ; and *Negro Long-podded* and *Dark Dun* the last week. To succeed the tall varieties sow *Pale Dun* and *Negro Long-podded* again about the third week in July. For the main crop, sow *Carter's Champion Scarlet Runners* about the middle of May, and again the second week in June. The crop from the last sowing will be found most valuable, as it will be fit for the table when the glut of cauliflowers, peas, and other summer vegetables is past. The common *Scarlet Runner* may be sown, as advised for *Carter's Champion*, but the latter is decidedly the best, and should therefore have the preference.

By sowing the several varieties in the above-mentioned order, a liberal supply will be ensured from the earliest possible moment that Kidney Beans can be had from the open ground until the frost cuts them off in the autumn.

Now a word as to the cultivation of Kidney Beans. Although the dwarf varieties bear drought better than most other vegetables, they, in common with the tall sorts, make a more satisfactory growth, and are more productive when the soil is stirred to a sufficient depth

to enable the roots to strike down deep enough to be beyond the influence of a few days dry weather. They also do better in a moderately-rich soil. We sow the earliest crops of the dwarf sorts on a south border, and the later crops between the rows of currant and gooseberry trees, which, by the way, are rather wide apart, because the room cannot be spared for them elsewhere. They appear to do better in warm sunny situations, especially the earliest and latest crops. The runners do not appear to be so particular in this respect.

As the runners remain in full bearing throughout the season when in well-tilled soil, a little extra care must be taken in its preparation. In fact, they should be sown in trenches prepared in much the same manner as for celery—a liberal dressing of fat manure being well worked in with the soil at the bottom of the trench, to induce the roots to strike downwards. When ready for sowing, the surface of the trench should be about three inches below the general level to facilitate the application of water if necessary. When sown on the level, or on ridges, as is very frequently the case, it is a very difficult task to water them effectually, because the water will spread over a very large surface instead of soaking to the roots of the beans. Kidney Beans are generally sown too thickly in the rows, and the produce is small in consequence. Both the tall and dwarf sorts should be quite nine inches apart, to afford them sufficient room for their full development. They should be sown about four and a-half inches apart, and every other plant thinned out when they are past the danger to be apprehended from the attacks of snails, etc. I believe that we should also obtain much better crops of peas if we were not to sow them so thickly as they are usually sown.

J. B.

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## MELON CULTURE.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill, N.E.



THE cultivation of Melons is undoubtedly attended with more difficulties than summer Cucumbers, but these are no reasons why the amateur may not produce a good crop of well ripened fruit during the summer season.

For the production of crops early in the summer, an efficiently heated pit or frame is essential, for Melons must have the assistance of a brisk bottom-heat, and a generous temperature when planted during February, March, or April; but for later crops, say for example those planted in May or June, bottom-heat can be dispensed with, and little, if any, artificial top-heat will be required. Therefore, pits and frames employed in wintering bedding-plants can be filled with Melons as soon as the winter occupants are removed to the open air. It will be an advantage if the structure in which they are grown is provided with a service of hot-water pipes, to enable the cultivator to assist the plants with a little artificial heat

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during periods of dull cold weather, both in the earlier stages of growth, and when the fruit has nearly attained maturity. Bottom-heat is also advantageous in enabling the plants to become established with greater rapidity, and if convenient the soil should be placed upon a bed of leaves or stable manure, which has been prepared in the usual way. The bed of fermenting materials need not be of so great a depth as would be necessary earlier in the season, enough to keep the soil warm during the first few weeks only being required. The fermenting materials must not be put into the frame until they have been well sweetened by being laid in a heap, and then turned over three or four times, with an interval of two days between each turning. The length of time the manure lays in the heap must be determined by its condition when first taken in hand; that recently taken from the stable requiring the most thorough preparation. The frame may be filled to within fifteen inches of the top, as twelve inches of soil will be sufficient, and it is important that the foliage and fruit should be near the glass.

The compost prepared for Melons must be of a more close and retentive character than that recommended for cucumbers, and should consist wholly of loam and well-decayed manure. Leaf-mould is not desirable, and the manure must be employed in small quantities. The loam should be rather strong or heavy, but full of fibre, and be used in the proportion of four parts to every one part of manure. The bed of soil should be formed in the same manner as advised when dealing with the Cucumbers last month, with the exception that it must be trodden or beaten much firmer. The tops of the ridges should, therefore, be perfectly flat to prevent the water running off as fast as it is poured on. Soil must be added as the roots make their appearance on the outside of the shed. An addition of eight or ten inches will be sufficient at once, and it should be of the same temperature as that of the pit to prevent the roots receiving a chill. This will not be a difficult matter, for if the soil is spread out in the sun, and taken to the frame in the afternoon of a bright sunny day, it will be quite warm enough, and it may be useful to state that, as far as practicable, all work requiring the lights to be open for a considerable period should be done in warm genial weather only. As a rule, the beds will require two or three additions of soil, according to the width of the frame.

With respect to stopping and training the growth, it will be seen by the following directions that it is a much simpler matter than it is commonly supposed to be. If the plants are not stopped previous to their being put out, nip off the growing point at the third or fourth leaf, immediately they are established. Several secondary shoots will push from each plant, and must be trained regularly over the bed. When they reach the side of the frame stop them at the point, and fruit-bearing laterals will be produced at almost every joint. From four to six fruit will be quite sufficient for each plant to bring to maturity, but it will be well to leave nearly double that number until they attain the size of a hen's egg, because some will occasionally turn yellow, and drop off when about the size of a small walnut. It is, in fact, desirable to leave all the



laterals upon which there is an embryo fruit until after the latter is set. The other laterals should be stopped at the first or second leaf from the main stem; the others should not be stopped until it is seen that they are not required for fruit-bearing purposes. Those upon which the fruit is allowed to remain must be left unchecked, as they help to draw up nourishment to the fruit. All subsequent growth should be kept in check by stopping with the finger and thumb, to prevent overcrowding. The female flowers will require fertilizing with pollen from the male blossoms, and this should be done about noon, when the foliage and atmosphere is rather dry, for the pollen is then more potent than at any other period of the day.

Melons do not require such frequent supplies of water as Cucumbers, but the soil must under no circumstances be allowed to become dust dry, excepting when the fruit is nearly ripe. No water must be applied from the time the fruit is set until it has attained the size of a small pullet's egg, and to prevent the plants suffering during that period, the soil should be thoroughly soaked, just as the plants are coming into flower. Moisture is very injurious at the above mentioned period, but the foliage must be syringed once a day to prevent red spider establishing itself. After the fruit commences to swell freely, more liberal supplies of water will become necessary. The supply of water must be lessened as the crop approaches maturity, because too much moisture will materially impair the flavour.

To keep the foliage clean and free from insect pests, use the syringe freely twice a-day; the first time early enough in the morning for the foliage to become dry before the sun can act upon it, and the second as early in the afternoon, as the frame can be closed without any danger of the foliage being injured by excessive heat. It is important to close the frame early, so as to utilize the sun-heat to the fullest possible extent.

The best varieties for general cultivation are :—GREEN FLESH, *Bailey's Eclipse*, *Golden Gem* (Cox's), and *Improved Victory of Bath*. SCARLET FLESH, *Scarlet Gem*, and *Malvern Hall*. There are many other thoroughly good varieties, but the above will be sufficient for any one garden.

THE GARDENER'S WEATHER GLASS.—To make a cheap weather-glass obtain a hyacinth glass of clear, not coloured glass. Then obtain an empty salad oil flask, with the rush by which the outside is protected cleaned off, and the oil quite drained out. Invert the flask bottom upward into the hyacinth glass. Then put clean water into the hyacinth glass until it reaches to about a quarter of an inch up the neck of the oil bottle. Let it stand on a level firm bottom in an airy room, where it is not likely to be disturbed or moved in any way, and where it will be under the eye. For fine weather the water will rise up the neck of the oil bottle, exactly as the mercury rises in an expensive barometer. For wet weather the water will fall, more or less, according to the degree of humidity in the air; in fact, it will act just the same as an expensive barometer; and, as regards foretelling the weather, will be quite as truthful all through the summer months. But it is not to be depended upon during the winter. If your readers will try it the coming summer, they will find it answer all the purposes of a costly weather-glass.

THE VICAR'S GARDENER.

## ZONAL PELARGONIUMS FOR CONSERVATORY DECORATION IN WINTER.

BY GEORGE SMITH.



FEW people, it appears to me, who have conservatories and greenhouses are acquainted with the value of Zonal Pelargoniums for winter blooming, or I am sure they would be most extensively grown for the winter decoration of these structures. We find them invaluable, as their showy colours are so attractive during the dull weather we usually have two months before Christmas. Some varieties are more valuable for this purpose than others, and to ensure them flowering freely at the proper season, a special course of culture is necessary.

The plants to bloom in winter must be strong and vigorous, hence it will be useless to expect many flowers from those exhausted by flowering during the summer and autumn. Last winter we had a fine display of bloom during the autumn, and the conservatory had a most brilliant appearance, for at no other season of the year are scarlet and other bright colours more acceptable than during the winter.

The plants from which our display of flowers was derived were selected early in May from the stock in sixties, and were shifted into five-inch pots. When nicely rooted they were stopped, and the points of the side shoots pinched out above the second or third leaf. By the time the young growth produced by the side-shoots was from half-an-inch to an inch in length, the pots were well filled with roots, and required a shift into larger pots. The largest proportion were shifted into six-inch, and a few of the largest into small-sized "eight-inch" pots. The compost used consisted of three parts turf loam and one part well-decayed hotbed manure and a small proportion of coarse silver sand. This appeared to suit them exactly, for they made rapid progress. A few of those which had not produced a fair proportion of lateral growth were stopped again, but late stopping appears objectionable, for those not stopped after the middle of July produced the largest quantity of bloom. The grand point appears to be having the pots well filled with roots and the wood thoroughly matured before the end of the summer. To reduce the labour as much as possible they were placed upon a layer of coal ashes on a shady border during June and July, and at the end of the last-mentioned month, they were removed to a sunny position. After they were pot-bound moderately weak liquid manure was applied once a week, until the end of September. Afterwards clear rain-water was used, as the use of stimulants is not desirable during the short days, when there is a deficiency of light. Concurrently with withholding the liquid manure the plants were removed to a greenhouse used in bringing on such things as Persian Cyclamens, Chinese Primulas, and other things that require a temperature of about 55°. The temperature of an ordinary greenhouse in which hard wooded plants are wintered is not sufficient to maintain a steady growth, and in the case of the Zonal Pelargoniums, few flowers will

be produced unless the plants continue to grow steadily. In the temperature here mentioned they flowered very freely for a considerable period. As a means of affording them further assistance, they were watered with water about ten degrees higher than that of the house, and there can be little doubt that the tepid water was of considerable assistance to them.

Of a considerable number of varieties grown, the following were the most effective :—*Payne's Perpetual*, a brilliant scarlet, very dwarf and free; *Coleshill*, bright rosy scarlet; *Madame Mezard*, purplish crimson, shaded with purplish violet; *Ianthe*, very rich purplish crimson, with distinct shade of blue; *Master Christine*, clear rose-pink, dwarf and wonderfully free flowering; *Mrs. Spencer*, delicate flesh, shading to carmine, very free and good; *Jean Sisley*, brilliant scarlet; *Tristram Shandy*, cerise scarlet, dwarf and free, flowers small, but so freely produced as to render it very attractive. *The Bride*, pure white; and *Blue Bell*, deep pink.

## THE VALUE OF HARDY PLANTS IN THE FLOWER GARDEN.

BY JOHN BURLEY, F.R.H.S., ETC.,

Hereford Road Nursery, Bayswater, W.



ALL who have flower gardens are now thinking about how they will arrange and decorate them this season, and I think our time will be well spent if the matter is thought over a bit in advance. Let us see if we cannot do better than we have done before. We will first go to the plan that has been adopted of massing plants of different colours together, to have what is generally called the best effect, as in the grouping system. But has it never struck you, gentle reader, as it has me often, that we really bestow much labour and time on what, after all, is but a transitory scene, or, in other words, we are planting and potting, and otherwise preparing plants for nine months, to enjoy but three months of their beauty? for bedding plants cannot be said to have very much show in them before the middle of June (and you must have strong plants to get it then), and after the middle of September their beauty and gaiety is all but gone, or at any rate fast going, and that is just three months. And a very little later in the season, up we pull the plants, or a portion of them, to pot, to supply us with cuttings and so forth, when needed, for the coming season; and during all the rest of the year our beds are a blank (or, at any rate, where the bedding system is carried out), unless we plant bulbs for spring decoration; and in nine cases out of ten this generally turns out different from what we intended, or at least expected, for it is generally managed so, viz., hyacinths or tulips edged with crocus or snowdrops, and as a matter of course the crocus and snowdrops bloom first, and that is just like looking at a frame without the picture, and *vice versa*.

When I was young, the flower garden was at all times attractive

May.

and somewhat gay, and with hardy herbaceous plants, that gave us no trouble whatever, except when we dug up the borders, and that was just to put the spade through them to divide all clumps that were becoming too large. There were our immense clumps of *Phloxes* of all colours, mixed with the herbaceous *Lobelias*, with their lovely spikes of scarlet, blue, crimson, white, and damson, and other colours: these, with a large clump of *Tritoma* in the middle, formed the centre part of a large round bed. Then came some *Pentstemons*—and how lovely these were, so bright and lasting! *Antirrhinums* of all colours; *Campanulas*—and of those we had shades of blue and white, both double and single, and short and tall; *Perennial Lupins* of many sorts and all heights, with here and there a clump of *Ribbon Grass* (*Phalaris arundinacea*) mixed up with the flowers to add grace to their richness. Then, for the front of the bed, we had our *Carnations* and *Pinks* and *Pansies*, with *Aubrietias*, *Arabis*, *Alyssum*, *Daisy*, *Hepatica*, *Iberis*, and a host of plants in this way—and these were all hardy, mind you; and in the summer we mixed up with them *German Asters*, *Stocks*, and a certain quantity of various *Geraniums*, *Verbenas*, *Calceolarias*, etc. Now by following this plan of bedding-out, we were seldom without bloom of some sort; for at Christmas, and long after, we had the *White Hellebore*, then came clumps of *Snowdrops* and *Crocuses*, in company with *Violets*, *Hepaticas*, *White Alyssum*, and other plants. Then the *Pansies* came on, with the double and single *Auriculas*, *Polyanthus*, and *Primulas*; and in May we had lots of things to look gay, including the *Lily of the Valley*, *Dielytra spectabilis*, and so forth; and then through the summer and autumn the garden was always looking cheerful with something right up to November, the last to bloom excepting *Chrysanthemums* being *Antirrhinums*, *Verbena venosa*, *Asters*, *Mignonette*, *Tritomas*, and other plants.

Why, then, should all these beautiful plants be quite put on one side, to give place entirely to summer bedding plants? Why not grow a selection of each, and secure bloom in our gardens a greater portion of the year, instead of, as now, having a blaze like a sky-rocket for a short time, and then fading away, leaving nothing but the sky-rocket case and stick? And I am sure, if a portion of the good taste displayed in arranging the bedding-out plants were brought to bear on herbaceous plants, we should not be wanting a good display. But you will perhaps say, "We are wanting in colours in herbaceous plants to make the display that we get in bedding plants." Are we, indeed? Let's contrast a few plants together, and see how we shall get on. Now for **YELLOWS**, the *Calceolaria* is about the main stay for your bedding plants. Just so; but I have seen clumps of *Ænothera* that would place all such in the shade. It is true it does not open on wet days, and it would be as well if *Calceolarias* did not; for I don't know of any plant that has such a water-logged appearance in wet weather, leaving out the shattered aspect they present the morning after a thunder-storm. Then for **BLUES**, *Lobelias* we all like, and always shall, and *Purple King Verbena* ditto, and there is not much else in bedding plants of this colour. But suppose we introduce some beautiful *Delphiniums* and *Plumbagos*



and *Herbaceous Lobelias*, and vary our edging with some *Gentianellas*. These last are so beautiful that I wonder how it is we rub along without them. I saw an edging of them around the flower garden at Abbotsford, the seat of the immortal Scott, and every flower was as large as a pigeon's egg, and the colour a heavenly blue. And for SCARLET and CRIMSON, I must confess to have seen a bed of *Dianthus Dunnettii* that shut out all the pretensions of Geraniums. Then we have the *Lobelia fulgens*, and the *Gladioli*, and a lot of other plants. And for mixed colours, there are the *Veronicas*, the *Hesperis* or *Rocket*, the beautiful *Double Pryethrums*, of all colours; and for edging, the *Gnaphalium*, *Aubrietia Campbellii*, and many others equally beautiful. Now, what do you say after all this chat about bedding-out plants? Don't you think it is time we turned over a fresh page in our bedding-out system? Suppose we try half herbaceous plants in our coming summer decorations? We shall be sure to come to it at last, and the longer it is left the more difficulty and expense there will be in forming a collection of good subjects. At present the cost of those I have named will be no more than for strong bedding stuff, and in some cases much less even than that. So, good reader, I have placed the whole matter carefully before you, should you decide on giving a few hardy plants a trial, you can begin at once if they are obtained in pots. No fear of the frosty mornings for these; and another advantage is, there they will be year after year, and increasing in size and beauty.

### GREEN PEAS IN AUTUMN.



It is a rather difficult task to keep the table well supplied with green peas during the autumn, but considering how acceptable they are at that season of the year, they will more than repay all the labour and attention necessary to keep up a supply. A special system of culture will be necessary too, for the plan by which abundant crops may be produced in the early part of the summer, will fail in securing a crop in the autumn. My system is to prepare trenches in May, on the same plan that most people do for celery—that is, a trench is dug out fifteen inches wide and a good spade deep. In this trench is placed six or seven inches of well-decomposed stable manure, and trodden well in with the feet; upon this I place two inches of soil, and upon that sow the seed. Before the seed is covered I give it a copious watering with the rose fixed upon the water-pot. The seed is then covered with two inches of fine earth, and if there is a prospect of dry weather place a mulch along on the top of the row, either of short grass from the lawn, or stable litter, or, in fact, anything that will prevent excessive evaporation. But as a means of reducing the ultimate labour of watering, should a dry season follow, draw up to within six inches on each side of the row a little ridge of earth. This will be the means of securing to the whole mass of roots all the water which may be hereafter given them, as it forms a sort of channel, and permits none to escape; and if sufficient earth is from the first drawn

up, it will admit of a little being used as a covering, which is very beneficial when shaken over the soil that has just been watered. This system of preparing, and the little after-attentions which should properly attend it, may seem to some a very troublesome proceeding, but for those who wish to grow them well there is no better method. Of course it is more simple to turn up a plot of ground and sow them as they are ordinarily sown in drills; and in spite of what we write there will be many do so this year. For a late crop there is nothing to beat the *Clampion of England*, and they may be sown up to the last week in June; if variety is wanted, the *British Queen* and *Ne Plus Ultra* are the next best of the large peas. Of the dwarf varieties the *Woodford Marrow* and *Knight's Green Marrow* are good, but both of these are more liable to mildew. For still later crops, sow an early pea, such as *Sutton's Ringleader* or *Laxton's Alpha*. The *Blue Scimitar* is also a good late pea if sown in June. It is no use to sow later than the 8th of July, and then they must be considered only as a chance crop, for unless the autumn is a favourable one they will not arrive at maturity.

It must be borne in mind that peas generally require during dry weather a good supply of water—sufficient to penetrate to a good depth in the soil. Few would credit the depth they will go in search of nourishment. As they advance in height, see that they do not suffer from high winds, and when they have grown three feet mulch them well with rotten manure, if it is at hand, or the next best subject that offers itself for the purpose.

Where space is at command, there is no better plan for late peas than to place the rows a good distance apart, and plant other crops between: from nine to twelve yards is not too far. They will then have room for a proper development, and one row so placed will be as productive as two of the same length if they are close together. J.C.

## GARDENIA FLORIDA.



WHY is it that you see this lovely plant so little grown? I have gone through different places where they had large numbers of stoves and greenhouses, and have seldom seen a plant of this in bloom. I have sometimes asked, "Do you not grow any Gardenias?" The answer is generally, "We have not any just at present;" or, "Oh, yes, we have one *somewhere*!"

To my mind a large plant of *Gardenia Florida* in full bloom is as handsome a plant as can be grown. The gardenias are useful also for the decoration of the drawing-room, dinner-table, or for cutting for hand bouquets. For though they are stove plants they will stand being kept in a room well. I grow a good many, as they are favourite flowers of mine. At present I have a specimen of *G. Florida*, two feet high and three feet across, with upwards of *three hundred buds on it*. I have also a number of small plants about one foot high and the same across, with from fifteen to twenty buds on each. One of these small plants when it is in flower will perfume the conservatory.

For dinner-table decoration nothing looks nicer or more simple than neat small plants of the above in full bloom.

I grow mine in a mixture of peat, loam, manure, and silver sand. While making their young growth, I keep them in the stove in a good moist heat. When the plants have made their young growth and show their flower-buds I put them in a cooler house, and as I want them to come into flower in succession I place a few at a time back into the stove so as to promote the full development of their lovely flowers. When they are out of bloom I give them a little rest; then prune them into good shape, fresh pot them, and then start them into growth for the next season.

Some people, I know, think, because this is a stove plant, it is difficult to grow, but I find it very easy, and I am sure all who will try my plan, will succeed if determined. It should be remembered that, as a rule, stove plants differ from greenhouse plants *only* in requiring more heat and atmospheric humidity. A. H.

*Upper Norwood.*

## STOVE CLIMBERS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



**CLIMBING PLANTS**, when properly managed, add so much to the appearance of the stove, that they deserve to be planted more freely. It is, of course, important to use some judgment in planting them so as not to cover the roof with a complete canopy of green foliage, and thus deprive the plants underneath of a fair share of light. It is also essential either to plant them out in a border or else put them, when large, in pots of a considerable size, to place them under the most favourable conditions for making a vigorous and healthy growth.

It is difficult to lay down any precise rules with respect to the distance apart at which the plants should be put, or the growth be trained, as they vary considerably in vigour, and also in the manner of growth. Some, such for example as the *Stephanotis*, will com-

May.



*ÆSCHYNANTHUS SPLENDENS.*



pletely cover the roof of a very large house in a comparatively short space of time, whilst others are only suitable for training up a single rafter. It can only be said that the training of the growth should be so performed that the light necessary for the healthy development of the other occupants is not materially interfered with, and also that as far as practicable the shoots should be so regulated, that the secondary growth can be removed in the autumn without having to interfere with the main branches.

The climbers suitable for ordinary purposes do not vary much with respect to their requirements in the matter of compost, for all can be grown very satisfactorily in a compost consisting of equal

parts loam, peat, and leaf-mould. The strongest growers will, perhaps, do better planted out in borders, but, on the whole, it will be found more advantageous to grow them in pots, as they will then be more under the control of the cultivator. The pots should be hidden as much as possible with the other plants, but they ought not to be placed so as to receive the drip from them, because in the winter season it will be very hurtful. Select strong plants, and when they come to hand shift them into pots two sizes larger, and afterwards repot them annually, or once in two years, according to the progress made. After they are put into pots of a large size, many of them may be taken out of the pots, and the ball reduced to admit of their being put in the same sized pot again, with a considerable proportion of



BIGNONIA VENUSTA.

fresh compost. With respect to the general management, it will suffice to say that the young growth must be regulated as occasion may require to prevent its becoming entangled, and having an unsightly appearance. The syringe must be plied somewhat vigorously amongst the foliage when they are not in bloom, to prevent red-spider, thrips, or green-fly becoming established upon it.

The following would form a capital selection for a stove of ordinary dimensions:—*Allamanda Hendersoni*, *A. nobilis*, *Bignonia*



*venusta*, *Bougainvillea glabra*, *Cissus discolor*,\* *Clerodendron Balfouri*, *Dioscorea discolor*, *Dipladenia amabilis*, *D. crassinoda*, *Hoya carnosa variegata*, *Ipomea Leari*,\* *Manettia bicolor*, *Passiflora Decaisneana*,\* *P. Kernesina*,\* *P. princeps*,\* *Stephanotis floribunda*,\* *Thunbergia fragrans*, *T. Harrisii*.\* Those most useful for large houses, because of their rapid growth, have an asterisk affixed to them. *Ficus repens* and *Æschynanthus splendens* are most valuable for trailing over rustic work in the stove.

## GAY BORDERS IN SPRING.

BY W. D. PRIOR, ESQ.



ALTHOUGH it is now too late to plant a border with spring flowers, it is not too late to profit by the opportunities of observing such where they are to be found, so as to be betimes at another season. This is the more important because there is no time when the garden presents such a melancholy aspect from the dearth of flowers as during the early months of the year. We get along tolerably well until February and the middle of March with the assistance of various bulbous flowers, such as Crocuses, Snowdrops, and analogous subjects. There are also the Early Tulips and Hyacinths, though both are too susceptible to frosty influences to be entirely relied on. The Hepaticas, Christmas Rose, etc., also make a pretty display; but it is the interval between the prime of these and the commencement of the bedding season which is the crucial trial for the mixed borders. This train of thought was suggested by a chance visit to the Hale Farm Nurseries, Tottenham, the proprietor of which, Mr. T. S. Ware, has long been famous for a most extensive collection of perennial—herbaceous and Alpine—plants suitable for mixed borders at all seasons of the year. Indeed, the catalogue of this class issued by Mr. Ware is a complete “vade mecum” on the subject, armed with which an amateur may speedily become a professor of the highest grade.

It must be conceded that if a garden, or portion of one, is to be devoted to flowers, it should be so cultivated as never to be without a fair display of colour possessing interest and beauty. Accordingly, in all arrangements, space should be left for the old-fashioned spring flowers, once the glory of our forefathers' plots.

Before entering upon any discussion on the subject, it will not be amiss to remark upon a few specialities which no border should be without, with a view of inducing people to look them out before becoming too *passée* to exhibit their true characteristics. The *Wallflower* is one of these. Setting aside its refreshing fragrance, there are few flowers at any period of the year surpassing its rich tints, whether of deep blood colour, dark purple, rich flaked yellow mixtures, or pure gold. It is also hardy. Its congener, *Cheiranthus Marshalli*, lemon yellow, ought not to be lost sight of. The pansy-

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like *Viola lutea major*, splendid golden yellow, begins to flower in April in ordinarily favourable weather, and continues throughout the season. Bear this in mind, however, that it must be propagated for another year by taking off the tops and striking them. *Viola Imperial Blue* should be associated with this. The Pansy naturally follows here, of which there are endless charming varieties. We have the large pale primrose or white kinds, at one end of the scale, and the nearly purple black at the other—the intermediate hues being almost kaleidoscopic in variety. Pansies should be renewed frequently from cuttings, no flower having a more inveterate tendency to go back to its pristine weedy origin. There are a number of showy varieties: for example, the *Maggie*, which is a very remarkable variety; *Trentham Blue*, the hardiest known; *Sunset* and *Cloth of Gold*, both beautiful yellow. *Woman in White*, *Purple Empress*, *Prince Christian*, *Prince of Teck*, *Alexander Tait*, *Mrs. M'Nab*, are florists' flowers for exhibition, as is *Agnes Laing*, which by many is considered the most beautiful variety known. Pansies like mellow turfy loam and a shady place. Fritillarias are interesting border plants; *Fritillaria imperialis* (Crown Imperial) is the most majestic of the race, both colours, red and yellow, being equally good. *Astilbe* (*Spiræa*) *japonica* and *Deutzia gracilis* may both be treated as spring border plants out of doors under favourable conditions, though perhaps more beautiful and at home for early forcing. It would be difficult to surpass both these plants for producing an elegant display. *Iris pumila*, purple, and *Iris pallida*, pale blue, come into bloom about the end of March. They are very dwarf, and deserve places in the border. *Adonis vernalis* is a showy yellow flower; *Primula nivalis* (dwarf), white; and *Lithospermum prostratum* (dwarf), blue, for rockeries; *Arabis albida*, white, is also good for rockwork, and are most suitable. The variegated variety is well suited for forming dwarf edging, the flowers being kept picked off. There is also a strawberry with variegated foliage, capable of being tried for the same purpose. The various kinds of *Alpine Auriculas* and the *Polyanthus* may also be ranked amongst the legitimate occupants of the border in spring. The *Scillas* and *Aubrietia purpurea* more properly pertain in variety to rockeries, rooteries, and cognate situations. *Belgian* and *Double Daisies* at one time were held in estimation for early bloom, especially for edgings; in the presence, however, of so many more showy objects in modern gardening, they appear lost to sight. They, however, make a grand display when they have justice done to them.

At Mr. Ware's there were two remarkable Arums—in themselves worth a visit to see. The first, *Arum crinitum*, like a huge cow's ear, the hair being inside, and a centre appendage protruding from the base five inches long, like a Scotch terrier's tail. I was informed that flies die at the smell of it. I did not venture to regale my nostrils with such an odoriferous treat, and consequently am unable to state the nature of its perfume, which must needs be of the strongest. *Arum cornutum* is another vegetable curiosity; indeed, there is something weird and grotesque about the Arum tribe, witness the snake-like stems of *Arum dracunculæ*.

One point should not be lost sight of in arranging mixed borders—viz., that every perennial should have a substantial tally, so that when the earth is forked or dug over, their roots may not be disturbed.

Of course, these are but broad suggestions in relation to a subject capable of much more expansive treatment, and designed rather to attract attention thereto at a seasonable period, with a view to future designs, than to lay down a complete treatise on the matter. There are many valuable plants suited for the purpose not named here, and many auxiliaries, such as the Flowering Currant for back-grounds, the variegated *Euonymus* for supports and contrasts, and so on.

## BANKS' NEW FUCHSIAS.

BY HENRY CANNELL, F.R.H.S.

The Nursery, Station Road, Woolwich, S.E.



It is very satisfactory to old Fuchsia growers like myself to know that Mr. Banks, to whom we are indebted for so many of our finest Single Fuchsias, is as busily engaged as ever in the work of improving the race of single varieties. The varieties selected from his seed-bed for distribution this season are very distinct, and an advance on those selected in previous years. I had the pleasure of seeing them in the autumn of last year, and now forward a description of the several varieties, thinking that it would be of interest to many readers of the *FLORAL WORLD*. As you well know, Mr. Banks has never been led away by the clamour for monstrosities, but has continued to give us varieties remarkable for graceful growth, and flowers upon which the true florist can look with delight.

The varieties are as follows:—*Alderman Mechi*—a good exhibition variety, on account of its fine pyramidal growth and good foliage, and bold-shaped flowers; tube and sepals dark scarlet, the latter well reflexed; corolla bright plum, shaded blue. *Baroness Burdett Coutts*—one of the most perfect shaped light-coloured Fuchsias we have; tube and sepals pure white, the latter perfectly reflexed; corolla orange scarlet, cup-shaped. *Duke of Edinburgh*—This is a beautiful variety of the light mauve coloured corolla class, and is the brightest colour and the most perfect of the section. *Hercules*—This is the dwarfiest grower and the largest flowering Fuchsia yet introduced; tube and sepals glossy coral red, the latter beautifully reflexed, and of thick leathery substance; corolla long barrel-shape, of a most intense blue. *Mauve Queen*—This is a beautiful bright coloured variety, of great merit; its corolla is particularly attractive, and is one of the choicest for an amateur's collection. *Mr. D. T. Fish*—Unquestionably the finest-habited of all the Fuchsias for exhibition; it has a strong pyramidal growth, dark scarlet tube and sepals, and well reflexed; corolla plum. *Mr. George Brunning*—This is in the way of that beautiful Fuchsia called *Try Me O!* and one of the most

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model-like plants that we possess ; tube and sepals dark scarlet, the latter well reflexed ; a most abundant bloomer. *Mr. Richard Paxton*—A grand improvement on *Glowworm* and *Killiecrankie* ; flowers immense size, growth pyramidal, free bloomer, and a great stride in this class, possessing beautiful dark magenta satiny coloured corolla, with a bright coral red tube and sepals, the latter reflexed quite up to the tube ; in every way very fine. *Our Future Queen*—A most beautiful light Fuchsia ; tube and sepals pure white, broad and reflexed round to quite a ring ; corolla red, suffused with purple, long and well expanded ; very free bloomer, good grower. *Striated Splendour*—This is the most regularly striped Fuchsia yet introduced, fine habit, a most abundant bloomer ; tube and sepals dark scarlet, the latter perfectly reflexed ; corolla plum coloured purple, most evenly striped with red, a decided improvement on *King of the Stripes*. *The American Banner*—So named in consequence of the corolla being most peculiarly and perfectly striped and blotched with red on a splendid blue ground coloured corolla ; fine habit, exceedingly free flowering.

## ARRANGEMENT OF COLOURS IN THE FLOWER GARDEN.



SO many unsatisfactory arrangements are made in the flower garden every year, that we have considered it desirable to point out a few of the principles of bedding for the guidance of the planter during the forthcoming season.

In the first place, you may depend upon it we cannot overdo the use of plants which produce a desirable effect by means of their leaves only, because we have in the bed or line one uniform colour, instead of dottings of red, white, or blue on a ground of green. Take a distant view of a bed of geraniums, and as you see the flowers *en masse*, the effect is decided and satisfactory ; you are in fact delighted, and so you go closer, and it is like being at a conjuror's elbow, and you no longer enjoy the delusion. Now you see the scarlet broken into splashes, and the green of the leaves spoils it. The combination of the green and scarlet produces on the retina a sort of neutral brown.

If you do not believe it, mix red and green together with water-colours and report to us on the result. But pluck a thousand trusses of scarlet geranium, and stick them in close together in a bed of dark soil, and you see at once how one colour on a dark ground satisfies the eye, whereas two colours, and those complementaries, cause dissatisfaction when both are seen without partiality to either.

It follows (and if it does not appear to follow, we can prove the point by other arguments) that a plantation of flowers set out parterre fashion, should be viewed nearly as possible in a horizontal line, or at an angle just low enough to take in the view of the farthest of the colours. Now, to plant out your geometrical garden, consider



first the several points from which it may be viewed, also reasonably, one angle and one of those points should be the drawing-room windows. From one of these points make your plan on this principle, that the colours in front are to contrast harmoniously with those next in the rear, and so on to the further side of the whole is to be a composition at which a true artist will clap his hands with delight. The way I judge a garden plan is as follows: I take a box of water-colours, and draw on a slip of paper the predominant colours in stripes, each in the proportion it has on the plan, and if they do not harmonize on the paper they will not on the ground, and this I have proved again and again in practice. On the other hand, what is good on the ground will be good on the paper. It ought to be so, for orange and violet look well side by side in a flat mosaic, in a lady's bonnet or dress, in a bouquet, and in a scheme of bedding. Well, you set out your colour, and you find that for your centre you want a neutral tint, to prevent the eye being drawn that way and to prevent the scheme shrinking, for it will shrink almost to nothing with strong colours in the centre. Now try again with the colours: make mere daubs of red, blue, yellow, crimson, etc., etc., close together or meeting closely. What a mess it will be. But take some strong greys, blues, whites, and ambers, and with these paint sharp lines between the strong colours, to separate them. Presto! how the scene is changed. If two colours come side by side that do not very well harmonize, the divisional line makes them tolerable. Put amber on your purples, whites on your blues and scarlets, blue on your orange, grey anywhere. By the way, grey is a good relief to any strong colour, so grey edgings come in generally, and are wonderful for geraniums. Now you see how necessary it is to colour your ground as the Moors coloured their pavements. Pale green will light up any combination of deep rich colours, such as purples, crimsons, and scarlets, and you have that always at hand in grass turf. But you say, "Why then find fault with the green leaves of scarlet geraniums, when a mass is closely inspected?" For this reason, that the scarlet flowers are sprinkled on the green. But when a mass of scarlet has a green boundary, the green is pure green, and green alone; if it is even dotted with daisies, you ought to be ashamed of it. But go on with the colouring. Tear up the paper on which you made the daubs for illustrating the use of edgings, and paint another. Put in the centre a patch of creamy white, and suppose that to be Snowdrop geranium. Round that put patches of lavender, cerise, and flesh: these are your semi-tones; and you can do them in *ageratum*, *geranium*, *heliotrope*, and *verbena*. Edge these with half-tones opposed to the half-tones of the mass. Now surround them with patches of orange, purple, scarlet, and crimson, in the order named, all round, and edge these with blue and silver, and the deed is done. From whatever point you view the group it will be harmonious. You can do all these in *calceolaria*, *geranium*, *verbena*, and *petunia*, and the edging will require *cerastium*, *lobelia*, *veronica incana*, *achillea umbellata*, and *antennaria*. As easy done as said. You only want plenty of plants, and courage to use them in sufficient quantity, and if you can't do that, level the beds down,

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and sow grass seeds, and make up your mind that bedding must be bedding, and not patching; and at the same time remember that the FLORAL WORLD is no enemy of bedding, but a decided enemy of bad bedding, as a degradation of the gardenesque.

S.H.

## GARDEN GUIDE FOR MAY.

**KITCHEN GARDEN.**—Sow beet for a winter supply. Thin beets already up, and if any gaps in the drills, fill up by transplanting the thinnings in showery weather. Sow Walcheren broccoli, collards, cauliflower, endive, kidney beans, lettuce, leeks, spinach. Plant out marrows, ridge cucumbers, capsicums, tomatoes, celery, and anything that may be strong enough from seed-beds of cabbage and winter greens. Potatoes are pushing with vigour. Hoeing between is of immense benefit, and a little earth may be drawn to the stems. Celery to be pricked out in frames and on warm light borders. Trenches may be dug out for the earliest crop, so as to be ready for planting as soon as the weather becomes showery. Sow the first batch of Endive. Kidney beans to be sown for succession, the rows two feet apart, the seed nine inches apart in the rows. Kidney beans are generally sown as thick as spinach, and the crop is less than may be had by using a tenth part of the seed. Thin every kind of crop where there is anything like crowding. Spinach, beet, turnip, parsley, etc., will be the worse for remaining thick.

*Ridge Cucumbers.*—The growth of cucumbers on ridges is a very simple matter, and it may be accomplished with or without hand-glasses. If hand-glasses are used, the plants may be got out at once; but if not, next week will be full early enough. Any moderately good light loam will grow them well; but fermenting material is necessary to produce a gentle bottom-heat. The trenches are made of various widths, some growers preferring to make them up as four-foot beds; but the usual and best measure is two and a half feet. The soil is taken out to a depth of one foot, and laid on each side; the trench is then filled to a foot above the surface with fermenting dung in a condition somewhat subdued as to heat by previous turning. Leaves, litter, grass mowings, and other fibrous material, may be mixed with the dung to increase the mass. If manure has to be purchased for the purpose, rotten dung will be at once the cheapest and the best, for there will be some bulk of manure for money, and it will give a good steady heat. When to cover the manure with soil must depend on the nature of the fermenting material. If rank and hot, let a few days elapse; but if rotten dung is used, the soil may be put on at once, and two or three days after the plants may be inserted and covered with hand-lights.

*Vegetable Marrows* may be planted out, provided the beds are in a nice warm condition, and the plants are strong. After planting, put hand-glasses over, or put baskets or large pots over at night for a time, in case of frost. But if the beds are not in a state of steady

fermentation, or if the plants are not strong, defer planting. But in any case get the beds ready, if not done already. Proceed in the same way as described for cucumbers, but make the beds four feet wide.

**FRUIT GARDEN.**—Fruits ripening under glass must have a comparatively dry air and plenty of ventilation, or they will lack colour and flavour. If a few fine fruits are preferable to many of an inferior kind, let those that take the lead swell off and ripen, and remove the greater part of the remainder. This practice is of great importance in the case of strawberries, as succession bunches coming on while more forward heads of fruit are ripening, retard the progress of the latter, and prevent them attaining to their full size and flavour. Orchard-house trees are now swelling their fruit, and need the help of manure-water. Use it rather weak at first, for fear of causing stone-fruit to fall. After two or three doses, alternating with plain waterings, increase its strength. Stone-fruits not yet beginning to swell should be kept without it for the present. As the mulch in the pots has now become dry and chippy, take it out, and replace with fat, half-rotted dung. Use the syringe freely, and with force, to wash off withered blossoms. Give air night and day, and pinch in to the fourth or fifth leaf from the base all the side-shoots, to cause a production of fruit-spurs. If the shoots have got too far, and the thumb-nail will not cut them clean through, use a small knife or scissors. Wherever you see a curled leaf, search for the cause of it, and you will find either grub or fly, with either of which deal promptly.

**FLOWER GARDEN.**—Asters must be pricked out in the middle of the month where they are to flower, or be potted singly in light rich compost. The frame is the best place for potted Asters; those bedded out will want the protection of mats, should the weather become cold again. Hardy herbaceous plants going out of bloom may be propagated from cuttings or seeds. Double Walls, Alyssum, Iberis, spring Phloxes, etc., etc., should be grown in quantity, and the only safe way to secure stock is to put the cuttings into a gentle heat. Pæonies need the support of sticks, to prevent the blowing over of their heavy flowers. A heavy soaking with liquid manure will do very much towards improving the bloom. Phloxes struck from cuttings now will bloom well in autumn; strong stools in the border will need thinning to reduce the number of shoots to a few manageable leaders, which are to be staked neatly and separately. Phloxes are now being grown in pots, and are very showy.

**Bedding-out.**—Dull weather is the best for this work, and if it can be done just before rain, much labour of watering will be saved. But when the ground is absolutely wet, bedding cannot be done properly, and had best be deferred a few days. When the plants are counted off and sorted for their places, let them go nearly dry; they will then turn out better than if the balls are wet. Plants that have not quite yet filled their pots with roots turn out in complete balls, remove the crocks, and close in without breaking the balls; but those that are absolutely pot-bound must have the ball slightly loosened, to enable the roots to push out easily into the free



soil. Plants brought in from nurseries should be put in a cold frame for a week before planting them, and the last day or two keep them wholly uncovered, to get quite hard for planting. If there are no frames to spare, let them lie about for a few days anywhere moderately sheltered. If these precautions are neglected, the result will be a crop of yellow leaves, and the deferring perhaps a fortnight of the season of full bloom; so a proper amount of care and a little reasonable delay will be a gain of time in the end. In planting, put out *Calceolarias*, *Antirrhinums*, *Pentstemons*, *Stocks*, and other of the hardiest kinds first. *Geraniums*, *Verbenas*, *Petunias*, and other soft-wooded plants from spring cuttings, will be the better for bedding if they have a little more care under glass. There is nothing gained by turning them out before they are strong enough for the purpose. Strong plants of all kinds, except *Lantanas* and tropical-foliage plants, may be put out in the middle of the month with perfect safety; but there is nothing gained by putting out miserable bits of plants from thumb-pots, that require a shift to 60's, and a little more greenhouse culture to give them size; nor is there any gain in planting until the plants have been properly hardened in the pots by exposure to the atmosphere for a fortnight, the latter part of the period to be exposed night and day.

**GREENHOUSE AND STOVE.**—Conservatory Plants are growing freely now, and must have plenty of air and water. The more air is given the more light may be allowed, as it is seldom any scorching occurs with plenty of air. Still it is impossible to avoid the use of shading, but let it be used as little as possible, and so as to benefit such plants as most need it. Climbers want attention to keep them in order. *Azaleas* and *Camellias* making their new growth to have abundance of water, and to be kept in a close pit, shaded; and water to be frequently sprinkled about, to cause a moist atmosphere. *Camellias* have not yet grown much this season. As the terminal bud forms, reduce the supply of water, as if they are kept in too free a growth after that the bloom runs away in a new leaf growth. Leggy plants will often throw out shoots if the stems are tied up in moss kept constantly moist. *Camellias* growing freely will be seriously injured if exposed to the full blaze of the sun. Shade them in some way, and keep the atmosphere of the house moist by sprinkling water on the paths, stages, etc. *Fuchsias* may be stopped again to promote a dense compact habit. Plants lately struck will now want a shift on. This is a good time to pot on the whole batch of plants from spring cuttings, as the houses are being emptied of the bedders, and there will be room for them. *Pelargoniums* that were forced for early bloom will be getting leggy, and their flowers are now scarcely wanted. Set them out of doors in a hot place—near a boarded fence or wall, for instance, in the full sun; keep them regularly watered, and allow them to bloom as they please, and make them useful for supplying cut flowers, and as soon as they begin to look worn out cut them down, put in a few of the young shoots as cuttings, and when the old plants have started nicely, re-pot them for next season. Specimens coming into bloom must never lack water. Give them as much sunlight as possible, but shade as soon as the



flowers open. Pelargoniums that are knotting for bloom freely may be aided by weak manure-water; but if there is a rank growth and little show of bloom, manure-water will do more harm than good. Give air abundantly on fine days, and syringe all the hard-leaved kinds overhead until the blooms begin to expand, then discontinue it. Varieties with soft leaves are less likely to benefit by syringing. Cinerarias are going out of bloom, and if it is intended to save any, or if the collection consists of named kinds, cut them down and remove to cold frame, and take care of them and wait for suckers. The sooner these are obtained the better, as they do not flower so early as seedlings, and of course it is a help towards early flowering to have them early potted. Ericas and Epacris that have flowered will do better now in cool airy pits than in the greenhouse. When houses are built specially for Heaths, provisions are made for affording them abundance of light and air. If they are kept close and mixed up with soft-wooded plants, they *must* be unhealthy. Shift on young stock, and shade after the shift; take care that none of the plants get dust-dry; remember rather that there are but few of the tribe but will at this time of year derive benefit from abundance of water.

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### HORTICULTURAL NOTES.

ROYAL HORTICULTURAL SOCIETY'S EXHIBITION OF CINERARIAS AND CYCLAMENS.—The Amaryllis, Cinerarias, Cyclamens, and Odontoglossums, with the miscellaneous collections of plants, formed a very pleasing and attractive display. Mr. Baxter, gardener to C. Keizer, Esq., Broxbourne, was the only exhibitor of Amaryllis for competition, and, as usual, staged a group of magnificent varieties. Messrs. J. Veitch and Sons, Royal Exotic Nursery, also exhibited a large collection of fine varieties. The competition in the glass for nine Cinerarias was rather spirited, and some fine specimens were staged. In all the classes for Cyclamens, the first prize was carried off by Mr. Goddard, gardener to H. Little, Esq., Cambridge Park, Twickenham, who in each case staged collections of well-grown and beautifully-flowered specimens. In the unlimited collection occurred some grand dark-flowered varieties, which for size of bloom and richness of colour are probably unsurpassed; Mr. Clarke, of Twickenham, who occupied the second place in the class for twelve and in the unlimited collection, also staged good collections, consisting of varieties of fine quality. Messrs. E. G. Henderson and Sons, St. John's Wood, also exhibited a remarkably fine collection, but not for competition. Odontoglossums were shown in splendid condition, especially by Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, who had beautifully-flowered specimens of *O. phalæopsis*, *O. pescatorea*, *O. Halli*, and *O. hystrix*. Miscellaneous collections of plants were as usual contributed by the leading metropolitan nurserymen, and formed a very large and important feature of the exhibition. Messrs. Veitch and Sons, exhibited a very large collection, comprising Amaryllis and Orchids, amongst which occurred the beautiful *Odontoglossum Andersonianum*, which was awarded a first-class certificate at the last meeting, and Roses in pots, which were staged in large numbers and in splendid condition. Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, sent a very select collection of Orchids and miscellaneous flowering plants, including the beautiful *Tillandsia Lindenii*, which appears to be a much better variety than the form exhibited by Mr. Linden. From Mr. Wills, Onslow Square, came a large collection of decorative plants, including a considerable number of the most useful Palms, and a large and superbly-flowered specimen of the beautiful *Rhododendron Countess of Haddington*. Mr. Bull staged a very large and interesting collection of plants remarkable for the beauty of their foliage, consisting chiefly of Palms and Cycads and also a few Orchids.

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Messrs. Rollisson and Sons, of Tooting, exhibited several magnificent pyramidal and standard specimen Mignonette, which attracted a large share of attention. Mr. W. Paul, Waltham Cross, presented a grand bank of Roses in pots, and several boxes of cut blooms, and Mr. C. Noble, Bagshot, exhibited a very large collection of Clematis in pots, to show their adaptability for the embellishment of the conservatory. Hardy spring-flowers were exhibited largely and in fine condition by Mr. T. S. Ware, of the Hale Farm Nurseries, Tottenham, who staged amongst other things Pansy Cloth of Gold, a most robust free-flowering variety, with rich golden yellow flowers of the highest value for bedding purposes, and Pink Mrs. Pettifer, a very dwarf-growing and free-flowering variety of great value for forcing. It is dwarf in growth, and the flowers, which are full, nicely placed, and well finished, are produced in the most profuse manner. First-class certificates were granted to Mr. Bull for *Zalacca edulis*, a very elegant species with gracefully-pinnate leaves; to Mr. Linden for *Oncidium caesi*, a small-growing species, with very beautiful yellow and brown flowers; and to Messrs. F. and A. Smith, Dulwich, for Azalea *Beauty of Surrey*; the flowers of this magnificent variety are very stout in substance, perfectly circular, and of the purest white.

ROYAL BOTANIC SOCIETY'S SECOND SPRING EXHIBITION.—This exhibition consisted mainly of miscellaneous plants. Cyclamens were exhibited largely, both by Mr. Goddard, gardener to H. Little, Esq., Cambridge Park, Twickenham, and by Mr. Clark, market gardener, Twickenham. They were, however, past their best, and the dark flowers had quite lost their true colours. In the class for twelve, Mr. Goddard and Mr. Clark were first and second respectively, and they were also awarded extra prizes for the unlimited collections which they staged. Here, the same as at South Kensington, Mr. Baxter, gardener to C. Keizer, Esq., Broxbourne, was the only exhibitor of Amaryllis, and he presented a large group of grandly-flowered specimens in addition to the collection staged in competition for the prizes offered by the Society. Cinerarias were exhibited by Mr. James, of Isleworth, in grand condition; and Rhododendrons in pots in large numbers, and in fine condition, by Messrs. Lane and Son, of Great Berkhamstead, who presented a large bank of well-flowered specimens, in addition to the collection of twelve staged in competition for the prizes, and for which they most deservedly received the first prize. The principal varieties staged were Empress Eugénie, Sir R. Peel, Lord J. Russell, Blandyanum, Elfrida, Minnie, and Verschaffelti. Hardy Herbaceous Plants were very good, especially the collection of twelve staged by Mr. T. S. Ware, of the Hale Farm Nurseries, Tottenham, who had *Astilbe barbata*, the variegated and plain-leaved Crown Imperial, the striped-leaved Lily of the Valley, yellow and brown double Wallflowers, *Primula cortusoides amœna*, *P. cortusoides alba*, the glorious *P. japonica*, and the curious *Iris iberica*. Mr. Ware had also a large group of spring-flowering plants, in which the lovely *Anemone apennina*, *Primula cortusoides amœna*, *P. cortusoides alba*, and *P. cortusoides lilacina*, Pink Mrs. Pettifer, and several varieties of *Iris pumila* figured prominently. The collection of twelve miscellaneous plants exhibited by Messrs. Lane and Son, contained densely-flowered specimens of two hardy Ghent Azaleas, which illustrated in the most forcible manner their great value for conservatory decoration at this season of the year. Roses in pots were exhibited in superb condition by Mr. W. Paul, Waltham Cross, comprising examples of a large number of the newer varieties, such as Marquise de Castellane, Ferdinand de Lesseps, Paul Neron, Madame Decour, Comtesse d'Oxford, and Princess Christine, all of which are well-known. Mr. Paul also exhibited a medium-sized specimen of the beautiful new hybrid perpetual Princess Beatrice, which received a first-class certificate when exhibited at South Kensington last year. Since then it has improved wonderfully, and now presents unmistakable proofs of being a rose of rare excellence. The flowers are globular, very large, and double, and of a deep carmine hue, with rose-pink outer petals. It was most deservedly awarded a Floricultural Certificate. The most interesting feature of this exhibition was perhaps the large collection of new Azaleas exhibited by M. Louis van Houtte, of Ghent, Belgium, the best and most distinct of which were the following:—*Madame Iris Lefebvre*, semi-double; deep red; fine shape and substance, very free flowering and most valuable for bouquets and general decoration. *President de Ghellinck de Walle*, semi-double; deep rose, with shade of purplish crimson and spotted with purple; very large and of good substance. *Dr. D. Moore*, semi-double, clear rose, lightly spotted on the top segments; very large,

of fine form and substance, and remarkably distinct and pleasing. *Alice*, double; deep rose, spotted on top segments with brownish crimson; medium size, but of grand form and very free flowering; somewhat in the way of Bouquet de Flore, but much better. *John Gould Veitch*, single; pink, with white margin; very large and of grand form; distinct and pleasing. *Comtesse de Beaufort*, single; deep rose, with brown blotch; large, stout, and of splendid form. *Marquis of Lorne*, single; very rich vermilion-scarlet; large, of superb form, and waxy in texture; this will prove a grand variety for exhibition purposes. *Mrs. Wright*, single; white, striped with earmine; very attractive. *Director Richardson*, single; rose-pink, large and showy, but second-rate in form. *Charles Lrens*, single; deep scarlet; showy and likely to be useful for decorative purposes. *Mrs. W. Bull*, single; white, with greenish centre; large and of fair form and substance. *Marie van Houtte*, semi-double; white, striped with red; large and attractive.

## TO CORRESPONDENTS.

**HOYA CARNOSA.**—*Osmunda*.—Syringing will do no harm, but, on the contrary, much good, provided that it is done either early enough in the morning for the foliage to become dry before the sun can act powerfully upon it, or in the afternoon after the sun has ceased to shine upon the house. The "white spots" are probably colonies of mealy bug or white scale. We cannot say what the seeds are from the name given. If it is a climber it cannot possibly be the tuberose.

**PLANTING FLOWER GARDENS.**—*Inquirer*.—You might vary the planting by filling some of the outside beds in the first group with verbenas. You might also plant the four corner beds in the second group with zonal pelargoniums, or part pelargoniums and part calceolarias and verbenas.

**AZALEAS AND GLOXINIAS.**—*W.H.S.*—Azaleas should be grown in a greenhouse, and be potted in fibrous peat and sand. The pots must be clean and well drained, and the soil pressed quite firm with the potting stick. They require re-potting annually, which should be done just before they commence to make new growth, or immediately after they have completed the season's growth. During the summer they should be placed upon a bed of coal-ashes in a light and open position out of doors. Gloxinias require a stove temperature during the earlier stages of growth, but may be placed in the conservatory when they come into bloom. They should be grown in a compost consisting of two parts peat, one part loam, and one part leaf-mould. To this should be added a liberal proportion of sharp silver-sand. They require protection from the sun, but they must not be grown in a position too shaded, or the foliage will be drawn up weakly, and the flower-stalks will not have sufficient strength to hold the flowers in their proper places. Liberal supplies of water are necessary when the plants are growing freely, but after they go out of bloom the supply of water must be lessened, and finally be withheld altogether. They must be kept quite dry during the winter season. When potted in the spring, shake all the old soil from about the combs, and put them in clean pots, with an entirely fresh compost. A brisk bottom-heat will be of great assistance in starting them into growth.

*M. B.*—*Warrenpoint*.—The letter was accidentally mislaid, but as directions have recently been given for the cultivation of the flowers mentioned, we do not suppose that any inconvenience has been felt. The anemones only are suitable for pots. They can be grown in a sound turfy loam. From four to six roots should be put in pots six inches in diameter.

**GREEN-FLY IN CONSERVATORY.**—*Jersey*.—As fumigating the conservatory is out of the question, tobacco-water or tobacco powder may be used. The latter is a very excellent preparation, and is applied by means of a puff when the foliage is damp. It may also be applied by a common tin box with a perforated lid. The plants infested with the green-fly should be dusted with the powder in such a manner that every fly receives its share. The powder must be washed off again with the syringe in about twenty-four hours after its application, to prevent its injuring the foliage. Tobacco-water may be made by steeping good shag tobacco in hot water. The tobacco-water is used by dipping the plants into it, or if the



latter are too large to admit of its being done, syringe them overhead, taking care to water every particle of the foliage. A very good insecticide may be made by steeping about two ounces of quassia chips in a gallon of hot water. This is very destructive to green-fly if the plants are immersed in it. Gishurst's compound, used according to the directions which accompany it, is also very useful in destroying this pest.

**PROPAGATING AZALEAS.**—*Mrs. D.*—The short-jointed shoots, if taken off when the wood is partly matured, strike freely with the assistance of a genial bottom-heat. The cuttings should be about two inches in length, and have the two lowest pair of leaves removed. The cutting-pots should be prepared by first half-filling them with crocks, and then to within half an inch of the rim, with peat and silver-sand. Upon this place a layer of sand, press it very firm, and water moderately. The cuttings should be covered with a bell-glass unless they can be placed in a close frame or pit. The pots may be either stood upon or plunged in the hotbed.

**BEGONIAS AND CALADIUMS.**—*A Subscriber.*—The ornamental-leaved begonias, to which we suppose you allude, should be grown in a shady position, and after April they can be grown very satisfactorily in a greenhouse temperature. They require very liberal supplies of water during the summer season. The gloxinias do not require a very sunny position, but they must not be grown in a very dark position, or the growth will be weak. The plants should not be fully exposed to brilliant sunshine, or the foliage will be injured. Start the caladiums at once. Shake the old corms out of the old soil, and put them in clean pots, and use a compost consisting of peat loam and leaf-mould. They should be started with the assistance of a brisk bottom-heat, and be grown in a rather shady position. The camellias should not be repotted until they go out of bloom, because by disturbing them beforehand one season will be lost.

**RAISING SEEDLING GLOXINIAS.**—*Mrs. D.*—Sow the seed at once in pots filled with equal parts loam, peat, leaf-mould, and silver-sand. Make the surface soil quite level. Sow the seed rather thinly, and cover with fine sandy soil. Place the seed-pots in the cucumber-frame, and when the plants are large enough to admit of its being done, prick them off into seed-pans, and before they become crowded, put them singly in three-inch pots. The soil should be much the same as advised for the seed-pots, excepting that a smaller proportion of sand will suffice, and that the loam and peat should be used in a much rougher state. If the plants make the progress they should do, they will bloom in the autumn. As soon as the leaves begin to turn yellow, dry them off, and store them away, in a dry airy place where the frost will be unable to reach them, for the winter. They will do very well with the pots turned on their sides underneath the side stages in the stove or greenhouse. If they do not make rapid progress during the earlier stages of growth, they will not require potting off, and may be left in the pans all the winter. If potted off separately in the spring, they will form strong plants early in the season, and bloom freely throughout the summer. Weak liquid manure, applied occasionally after the pots in which they are to bloom are well filled with roots, will be of great assistance in promoting a vigorous growth, and also help to prolong their season of flowering.

**PYRETHRUM GOLDEN FEATHER.**—*W. W.*—Plants raised from seed sown now will be quite large enough for planting in the flower-garden at the usual time for filling the beds for the summer. Sow the seed rather thinly in shallow boxes, and when the plants are about half an inch in height, harden them off, and prick them out in the places they are to permanently occupy. When small plants are put out rather close together, there will not be so much difficulty in keeping them in proper order, as is the case when large plants are put out at a considerable distance apart.

*New Subscriber.*—The ivies answer admirably to decorate the walls of rooms, but almost any plants will answer that are sufficiently elegant, provided they are removed to the greenhouse or open air occasionally to enjoy more air and light than the room affords.

*J. C., Perth.*—Camellias would probably be injuriously roasted in the vinery. Epiphyllums and cactuses would probably enjoy the sunny position. But we cannot very well advise without knowing what is the pitch of the roof, and the aspect.







VERBENA.—PLUTO.

## ECKFORD'S NEW LARGE-FLOWERED VERBENAS.

*With Coloured Illustration of Verbena Pluto.)*

THE Verbena is so valuable in the embellishment of the flower-garden, that it is with a very considerable amount of pleasure that we present our readers with a portrait of a new large-flowered variety, which marks a decided advance on all that are at present in commerce. The variety here figured has been selected from the seed-bed of that celebrated raiser, Mr. Eckford, gardener to the Earl of Radnor, Coleshill House, who, as many of our readers are aware, now enjoys a world-wide reputation in connection with this flower, which is now rapidly regaining its wonted popularity.

When Mr. Eckford first directed his attention to the improvement of the Verbena, he laboured hard to secure varieties possessing a robust yet compact and free-flowering habit, and bearing flowers brilliant in colour, and of fine substance, so as to be capable of withstanding the effects of unfavourable weather without injury. In this he has succeeded beyond the most sanguine expectations, and for some years past he has been able to pay considerable attention to the improvement of the shape of the flowers. The result is that we have now a race of Verbenas possessing a most robust, compact habit of growth, combined with flowers of the finest quality.

The varieties selected by Mr. Eckford for distribution this season are six in number, and from repeated observation, when they were staged at the Metropolitan Exhibitions last autumn, we have no doubt that their high qualities will render them even more popular than the splendid varieties we figured and described in the April number of the last volume of the FLORAL WORLD. As further evidence of their being of the highest excellence, and perfectly distinct from others already in cultivation, it is worthy of note that they were all awarded first-class certificates by the Royal Horticultural Society, which is the highest distinction that could be conferred upon them. The names and descriptions of the several varieties are as follows:—

*Pluto*, orange-red, shaded dark round a bold lemon eye, large pip and truss; a magnificent show flower. *Lady Edith*, pure white, with a pale rosy-purple ring round the eye; fine form and truss; very beautiful. *Lady Gertrude*, very pale lilac, with a rosy-mauve ring round a pale lemon eye; extra fine and attractive. *Mauve Queen*, pale lilac-mauve, with a large sulphur eye; fine and very distinct; most beautiful and distinct. *Isa Brunton*, plum colour, tinted with blue, and large pale eye; very bold and handsome. *Grand Duke*, a very fine ruby-crimson, of large size, and very showy and attractive.

Like other men possessing breadth of mind and skill of the highest order, Mr. Eckford makes no secret of the means by which he has achieved such signal success, and we have much pleasure in

directing attention to the practical paper "On Raising Verbenas," from his pen, which appeared in the last number.

The varieties described above are in course of distribution by Mr. John Keynes, of Salisbury, to whom all communications respecting the price, etc., should be addressed.

## POINSETTIA PULCHERRIMA AS A STOVE CLIMBER.

BY ANDREW MEIKLE,

Read Hall, Whalley.

(*From the Gardeners' Chronicle.*)



VERY few plants that are grown for their flowering properties can rival in beauty this well known subject, which nearly every horticultural establishment of any note in the country possesses. Coming, too, at a season when flowers are few, with its rich crimson bracts to enliven the conservatory as well as the stove, it is to be further admired on that account. But to give it justice and to see it in its full beauty, the Poinsettia ought to be planted out, and trained to the back wall or trellis in the stove, where, when it becomes established, it will give such a display of those rich crimson flowers as will entirely put out of court all display by other modes of cultivation.

I am led to say this from seeing a plant which had above 200 blooms or rather bracts expanded at one time, some of them measuring 15in. in diameter. Nothing could have excelled the beauty of this plant. The floral organs seemed to vie with each other in displaying themselves to the gaze of their visitors, while the leaves behind were green and glossy, giving quite a different effect to that presented by the often-faded leaves of plants cultivated in pots. I went again and again to admire this Poinsettia, which blooms so freely, and is so easy of cultivation, until at last I was determined to say something about it; at least, to call the attention of those horticulturists who are contemplating the planting of new stoves, or the rearrangement of old ones, to the fitness of the Poinsettia as a permanent plant for covering the back walls or other portions of the stove.

The one at Moreton Hall covers a space of nearly 40 square yards. As it begins to grow, the young wood, which can be easily led in any direction, is so trained, that when the blooming season arrives the flowers are evenly displayed over the whole surface covered. It begins to bloom about December, and, at the present time (March 1) it is still showy, the bracts like so many crimson stars. In a few weeks the plants will be cut back to within an eye or two of the old wood, and allowed to come away at its own proper time. There is a plant of Allamanda cathartica, grown in conjunction with the Poinsettia, and it is admirably adapted for that purpose. The Poinsettia, after being cut down, looks for a season rather naked, but a few sprays of the Allamanda trained here and there amongst



the branches of the Poinsettia help to hide the nakedness, and the golden bells of the Allamanda are a good change in their season. There is also another plant trained to the same wall, but kept to itself, and that is *Cereus grandiflorus*. This plant has been a companion to the Poinsettia for nearly thirty years; it grows vigorously, and has had as many as eighteen blooms expanded at one time.

These three plants derive their root nourishment from a narrow border of what may be termed friable loamy soil, which runs along the bottom of the wall; this border is encased with stone, and is 18 inches broad, by the same in depth. There is no bottom-heat, but the border is kept dryish on that account, and the plants seem to thrive under such treatment exceedingly well.

Perhaps the next thing to those three plants to be admired at Moreton is the person who has charge of them—a hale and hearty gardener of seventy-six summers, forty of which he has spent in his present situation, and who still continues to plant and sow with as much zeal as a young man on assuming the not over easy responsibilities of a head gardenership.

I have already remarked that the Poinsettia is of easy cultivation, and nearly all floriculturists know that it is almost exempt from the attacks of troublesome insects, which other occupants of the stove are generally subject to. Added to its freer state and lengthened season of flowering, the plant will be found well worthy of the attention of those to whom I have alluded. I believe those horticulturists, amateur and otherwise, who have seen this Poinsettia in bloom at Moreton Hall will corroborate my statement that the display which it made was extremely magnificent.

## RAISING SEEDLING PALMS.

BY GEORGE GORDON.



OW that these gracefully growing plants have become so thoroughly popular amongst all classes, it will no doubt be interesting to many amateurs to know that they can be most readily raised from seed, and that seed of a very considerable number of species can be procured in this country. Hitherto there has not been so much difficulty in raising the seed, as there has been in procuring it, for until quite recently the only seed obtainable in the ordinary course of trade, was that of *Chamærops humilis*, and one or two other species of no special value. Now, seed of nearly fifty of the most distinct and beautiful species can be obtained, for in the interesting *Gardening Guide*, published by Messrs. Hooper & Co., of the Central Avenue, Covent Garden Market, occurs a list of forty-five species of which seed can be supplied. Seed of a few species are offered by one or two of the other leading houses, but so complete a list as the one here referred to is not published by any of the other firms, so that the rule in reference to not recommending dealers is not infringed by directing attention to it. Raising seedlings is a capital way by which a number

of the most useful species for table decoration, or a large collection may be procured at a comparatively trifling cost, but as they make rather slow progress during the earlier stages of growth, established plants must be purchased if they are required to produce an immediate effect.

To raise seeds of palms a high temperature and a brisk bottom-heat are necessary, and if available the seedlings of the greenhouse kinds should be grown during the first two or three years in a stove temperature, to encourage them to grow as freely as possible. They may, however, be readily raised in a hot-bed made up for propagating purposes, or in a cucumber or melon frame, and the seedlings may be kept during the summer season in the frame with the cucumbers or melons, if there is no stove or vinery in which to push them along,



CHAMEROPS EXCELSA (FORTUNEI).

to make sure of their being well established by the winter. In raising a large quantity of seed of any one species sow in shallow boxes, but when the quantity of each is small sow in pans or pots. In either case provide an efficient drainage, and fill the pots or boxes with turfy loam or peat, and flaky leaf-mould in equal parts, and a very liberal proportion of silver sand. Press the soil rather firm, then lay the seed regularly over the surface, and cover with a layer of flaky leaf-mould. Plunge the seed pots in, or stand them upon the bed of fermenting materials, and sprinkle the surface occasionally with tepid water, so as to keep the soil moderately moist. In three or four weeks the young plants will begin to peep through the covering, and in a fortnight afterwards they may be drawn out and potted singly in three-inch pots, in a compost consisting of finely-chopped

loam, and leaf-mould, and silver sand, in equal parts. The soil must be warm, and the greatest care taken to prevent exposing them to the air in taking them to and from the propagating-bed. When raised in a stove or cucumber house, they should not be taken from the house, as it is most injurious to expose them at this stage. Return them to the hot-bed after they are repotted, and keep them there until they are established. When newly potted they must be sprinkled overhead lightly, but as soon as the young roots have taken possession of the new soil water may be applied more liberally. When the roots protrude through the holes in the bottom of the



PHENIX RECLINATA.

pots, shift them into five-inch pots, and when re-established the greenhouse species may be removed to a cooler temperature, but if convenient they should be kept in the stove until the following spring.

The following is a good selection from the list of species of which seed is offered by Messrs. Hooper & Co.:—*Acrocomia sclerocarpa*, *Areca alba*, *A. rubra*, *A. sapida*, *Astrocaryum aculeatum*, *Brahea dulcis*, *Caryota urens* (The Wine Palm), *Chamærops excelsa* (*Fortunei*), *C. humilis*, *C. macrocarpa*, *C. tomentosa*, *Cocos chilensis* (*Jubæa spectabilis*), *C. flexuosa*, *C. plumosa*, *Corypha australis*, *Euterpe edulis*, *E. oleracea*, *Hyophorbe indica* (*Areca lutescens*), *Latania borbonica*



(*Livistonia sinensis*), *Livistonia oliviformis*, *L. rotundifolia*, *Oreodoxa regia*, *Phoenix dactylifera* (Date Palm), *P. reclinata*, *Sabal Adansoni*, *S. umbraculifera*, *Seaforthia elegans*, *Sagus Ruffia*, *Thrinax argentea*, *T. parviflora*.

It only remains to be said that in their *Gardening Guide*, Messrs



CORYPHA AUSTRALIS.

Hooper & Co. give a list of palms which they supply in plants as well as those of which they supply seed, and that we are indebted to their kindness for the illustrations of the three species which accompany these notes.

## REVERSIBLE FRUIT-WALLS

IN THE EXPERIMENTAL GARDEN, STOKE NEWINGTON.



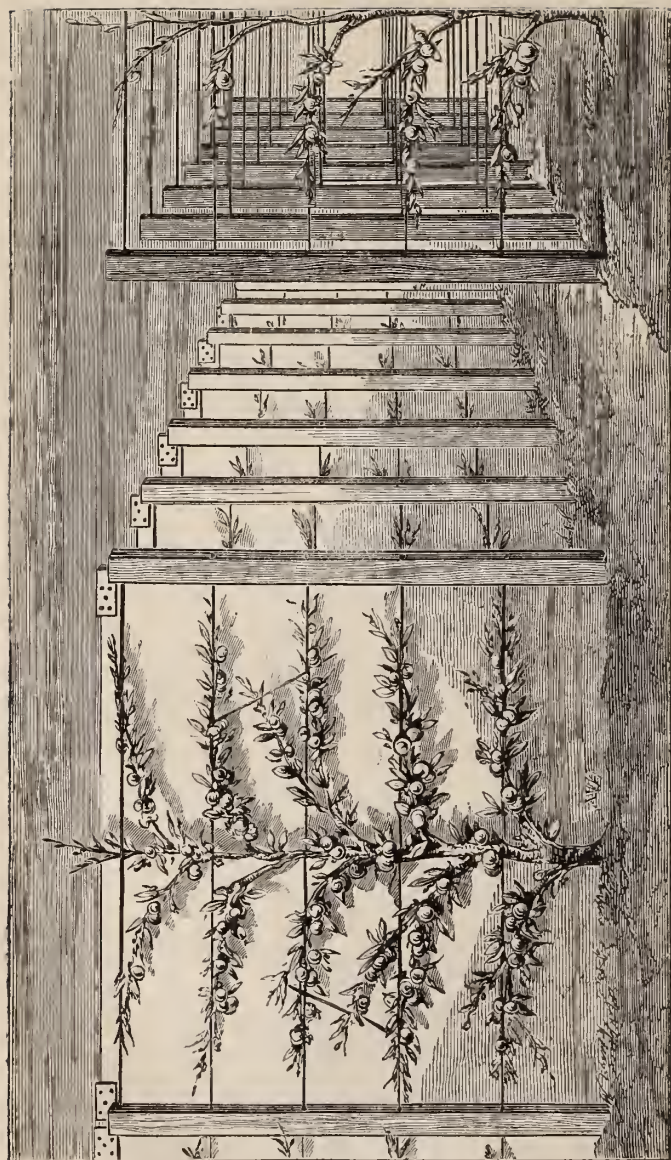
THE English climate is so fickle in character during the early part of the year, that the production of good crops of peaches, nectarines, and apricots is, in unfavourable localities, more the work of chance than it is of practical knowledge and cultural skill. To this ruling some of our readers may perhaps take exception, but it will be well to first consider of what avail the most skilful management will be, during the growing season, if the flowers are destroyed during the following spring. We do not for a moment depreciate high cultivation; on the contrary, we are prepared to admit that it will, in the long run, meet with an ample reward. It must however be acknowledged that, even with the greatest care in the management of the trees at all seasons of the year, good crops of the above-mentioned



fruits are the exception rather than the rule, through the injury received by the trees when they are in *bloom*. We, it will be remembered, generally experience in February an outburst of the most genial spring weather, with a south-west wind. The wall to which the trees are trained soon becomes warmed, and presently the trees are in full bloom, and commence to make a new growth. In a short time the wind changes to an opposite point of the compass, the wall is cooled, the flowers destroyed, and the tender leaves seriously injured. Protection by means of nets or textile fabrics is of little or no avail, and the labour of a whole year is thus, practically speaking, wasted. The best remedy for this unsatisfactory state of things is undoubtedly affording the trees the protection of glass, but it is not every one who may wish to have a good dish of peaches or nectarines on their table, who is able to afford the cost of a properly constructed orchard-house, or the expense or labour of managing it after it is built. Failing the aid of glass, protecting the trees not from cold when they are in bloom, but from outbursts of brilliant sunshine before the flowers are expanded, is of the most service, for every day's delay in the expansion of the flowers is a direct gain, for the risk of their being cut off by easterly winds or morning frosts is materially lessened.

This protection may, in the case of trees trained to walls of brick or stone, be afforded by thick canvas or some other fabric. But in this consideration of particulars, let us suppose that when the barometer and the weathercock indicated that a premature burst of spring was at hand, *the wall had been removed*, and the trees consequently set free from the stimulus to growth resulting from its absorption of sun-heat. Or suppose, that instead of removing the wall it had been turned round from a south to a north aspect; so that, instead of helping by its accumulation of sun-heat to force the trees into growth before their time, it would retard them by screening them from the sun, and securing to them at a critical moment the comparative darkness and coldness of a north aspect. To enable the cultivator to do this, the walls must be portable, and those who will have faith and patience may learn that, to a great extent, reversible fruit-walls solve one of the great problems of wall-fruit culture, and, without a doubt, they enlarge the area of the production of first-class fruits.

Here is a case in point :—Our new experimental garden is farther removed from the town, and towards the cold easterly trough of the valley of the Lea, than that in which our experiments have been conducted during the past fifteen years. One of the consequences of the removal is, that we now experience the very worst features of the climate of London, for these parts of the northern suburbs of the Metropolis are exposed to the full sweep of the winds that career in spring-time through the valley of the river Lea. Amongst the many difficulties of the horticulturist in the low, cold, marshy spot in which we are now located is one that every cultivator of fruit will understand on the slightest hint—the difficulty of securing a crop of wall-fruit in a season characterized by an early spring. The trees may have made a fine growth, and be in the best condition possible



REVERSIBLE FRUIT-WALLS IN THE EXPERIMENTAL GARDEN.

to afford the fruit required of them. But the spring opens earlier than usual, and the trees bloom prematurely, and the second winter, following on the heels of the precocious and momentary spring, "nips them in the bud," and destroys the hope of the cultivator. The summer heat is usually sufficient to ripen the fruit perfectly; the severest winter does not injure the trees, and if the spring opens later than usual, as happened in the year 1870, a heavy crop of high quality rewards the cultivator for his pains. The treacherous spring-time affords the greatest trial, and this, perhaps, could be avoided by merely removing the wall from the trees; but if the wall happens to be constructed of brick or stone, that course of procedure is out of the question. It was to meet this particular difficulty that we adopted, in the formation of a small fruit garden, the expedient of a reversible wall, the appearance and construction of which are represented in the accompanying engraving. The walls are made of wood, the trees are trained on wires; and the system affords the cultivator a choice of three conditions: the walls can be removed and stored away; they can be attached to the supporting posts on the north side of the trees, to insure them a maximum of exposure to sunshine; or they may be attached on the south side to exclude the sunshine, and keep them in a comparatively dormant state until the season is sufficiently advanced to permit of the reversal of the walls, and the exposure of the trees to the stimulus of solar heat. It would be waste of space to enlarge upon the advantages of this system to the cultivator located in a district where late spring frosts commonly prevail; nor need there be anything said on the advantage of the portability of the walls in the case of a tenant holding by a short lease, and preferring to pay for walls that shall be his own rather than for walls which the freeholder will claim, and perhaps turn to account as an argument for an increase for the rental. It will be better, perhaps, for the present to describe the contrivance in such a way that any good carpenter can proceed by the same course as our own in the construction of reversible walls.

In the primary arrangement of a fruit garden in which reversible walls are to be employed, a system of posts and wires must be provided in the best aspects for the several fruits and the peculiar climate of the place. Were we but somewhat sheltered on the east, a south-east aspect would be the best possible; but, as the bitter winds of March sweep with terrific force up the marshy trough in which the garden is situated, a few points to the west of south affords the best aspect for the more certain defence of the trees from the keen eastern blast.

In the illustration the general arrangement of posts and wires is represented, the walls on one side being removed to favour the dormant state of the trees in early spring. The posts are roughly squared, six to nine inches thick, and averaging six feet high. They are placed six feet apart and are braced together by a top bar of half-inch iron rod in a series of six-foot lengths, bent at the ends, and driven into the posts to render them immovable. The wires employed are common galvanized iron three-eighth inch, tightly strained and clamped to the sides of the posts in the same way that the top bars are. All this is, of course, extremely simple, but it



must be added that when the trees are planted, they must be so placed that their stems stand well within the line of the posts, to afford room for the placing of the walls on either side of them; if they straddle out from the line, the walls cannot be put in position properly unless the posts are increased in thickness so as to overstep the straddling of the trees.

The walls are formed of rough half-inch planks in lengths of six feet, so that each wall rests on two posts. They might be made of larger size of course, but the heavier they are the greater is the difficulty of handling them, and ours are heavy enough. In height the walls exceed the posts, so as to afford ample shelter to the top-most shoots of the trees that are trained to the top bar. They are braced together at each end by cross bars for the sake of strength, and between the several planks of which the wall consists tongues of hoop iron are inserted, to insure against the effects of shrinkings and the consequent exposure of the trees to draughts through cracks caused by the weather. The point of chief interest in the construction of the wall is that which renders it removable and reversible. The effect is the same as if a mere board were suspended to a post by hooks, and the cleats at the top corners of the walls, as shown in the figure, may be regarded as such, it being at the option of the cultivator to hang the walls on either side of the trees, and thus take his choice of two opposite aspects. To remove or reverse the wall is simply a case of lifting, nothing more or less. They are probably better adapted to the exigencies of the cultivator in the southern half or the southern two-thirds of Great Britain than to the remaining northern portion, where, probably, the substantial fruit-wall will continue to be necessary, and the cultivator must incur the risk of a complete or partial failure every third or fourth year, unless the wall is covered with glass.

But it must be understood that we do not regard *Portable and Reversible Walls* as sufficient to insure to their possessor an abundant annual production of wall-fruit, for the skill of the cultivator will still be required; but we are bound to consider them valuable aids to those amateurs who seek recreation in fruit culture without the aid of expensive appliances. We have seen in districts by no means highly favoured, standard peach, nectarine, and apricot trees produce an abundance of good fruit annually for many years without fail. But they were always late, and in a cold season the fruit did not attain to perfect ripeness. We therefore advise our readers to give heed to the claims of the reversible walls as cheap and efficient aids to wall-fruit production, anticipating that in the course of a few years they will secure to eaters of fruit in this country an abundance of fruits that are most valued at a tithe of the expense at present incurred in their production.

The walls should, if the space will permit, be erected in a straight line; but in a limited space, like that of a suburban fruit garden, they can be placed parallel to each other, as here portrayed. The left-hand side of the drawing represents the walls in their proper position, and the right-hand side the trees with walls removed.

S. H.



## AGAVES.

BY F. W. BURBIDGE, HORTICULTURIST, NOTTINGHAM.



**S**UCCULENT PLANTS are not as yet so thoroughly appreciated by the horticultural public as they deserve, for nowhere but in their ranks can we find the bold, massive characteristics which many of them possess in a superlative degree. It would be difficult to find species of any other genus in the vegetable kingdom that will appear to greater advantage when arranged in juxtaposition with sculpture, elaborate architectural details, or stone terraces, than will some of the most robust agaves. Grown in ornamental vases, they will show to advantage, during the summer months, in various parts of geometrical flower-gardens, which are attached to most residences, while they will prove eminently useful during the winter for grouping with the ordinary foliage and flowering plants in the conservatory or corridors. When grown in large pots they can be plunged in various parts of the grounds where the pots would not be in keeping with the surrounding objects. *Agave Americana* is an extremely noble-looking object when plunged in the vicinity of rockwork, or in the sheltered nook assigned to subtropical plants, its bold, massive leaves contrasting well with the foliage of palms or tree-ferns. In addition to these recommendations, they are very easily cultivated, and do not require a very high winter temperature; in fact, a nice pair of specimens have been wintered in a mean temperature of 40°, the thermometer often registering below the freezing point; but it should be borne in mind that during the summer these plants are fully exposed to the sun on terraces, and this course of treatment induces them to grow more robust and hardy than if kept constantly under glass; hence they are much better adapted to endure a low winter temperature than others kept under glass all the year round.

Some of our leading nurserymen have taken up the culture and propagation of these noble plants, and ere long we may hope to see them take up a prominent position in decorative arrangements in private gardens. Their propagation is simple, since most of the larger species reproduce themselves freely enough by what are technically called offsets or suckers. These last have only to be taken off and potted in good sandy loam, with a fair addition of broken crocks, in order to produce plants. Subjoined is a select list of *Agaves* for a general collection, which we are enabled to furnish from notes taken in the celebrated succulent houses at Kew and other places:—

*Agave Americana*, *L.* (Mexico).—This is well known as the “Century plant” of ancient gardeners—a name derived from the erroneous supposition that plants of this species did not produce flowers until a hundred years of age. It is the most common species of the family, and one of the most robust and ornamental, often producing leaves from five to seven feet in length, and of a beautiful glaucous hue. In habit this species varies greatly, according to the

state of the atmosphere in which it is grown. At Kew, where it is grown in a comparatively cool and dry temperature, the plants are compact and stubborn; while the plants grown in the hot, moist atmosphere of the tropical conservatory at Chatsworth produce large leaves, many of which rest on the surface of the beds, being unable to support themselves erect. *A. Americana*, var. *variegata*, is a well-marked variety, in habit similar to the last, but not quite so robust. The leaves are deep green above, with a broad margin of bright yellow; below, the foliage is glaucous, as in the normal type.

*A. Americana*, var. *striata*.—A very distinct and ornamental variety, rather smaller in habit than the last. Leaves of a glaucous hue, irregularly streaked in the centre and at the back with clear yellow.

*A. potatorum*, Zucc. (Mexico).—This species is very robust, with thick leaves two to three feet long, and eight or nine inches wide, margined with very coarse dark-coloured spines. This is a distinct and vigorous species, worthy of being added to the most select collection. Foliage green, with a tendency to become glaucous.

*A. Humboldtiana*, Jac. (St. Louis Potosi, syn. *A. oblongata*, Hort. Belg.)—Plant vigorous, having leaves three to four feet long, broadly lanceolate, and tapering very gradually to the apex. Colour of foliage soft green, tending to assume a glaucous hue, and margined with fine white spines. This is a very distinct free-growing species.

*A. Hookeri*, Jacob. (Mexico).—A large, robust grower, good specimens presenting a truly majestic appearance. Leaves three to four feet long, eight to ten inches broad, margined with coarse brown spines. The lower leaves are gracefully recurved, while those which stand more erect in the centre of the plant have recurved apices, the whole being of a soft and pleasing green colour. This is one of the noblest species in the genus, and is admirably represented by a grand plant in the Kew collection.

*A. Colsiana*, Hook. (Mexico).—A distinct plant, yellowish-green in colour, and somewhat rosulate in habit. Leaves one to two feet long, and three to five inches broad, being thickly margined with white teeth, which latter are frequently geminate, and curved towards the base of the plant. In colour this plant somewhat resembles *A. dealbata*, but differs widely in other characteristics.

*A. glaucescens*, Hort. Kew (Mexico, syn. *A. attenuata*, Hort. Berol).—This is one of the most distinct species of the family, having a cylindrical caudex of four to six feet high, and a crown of thick glaucous leaves, with entire spineless margins. It would make a splendid conservatory plant, but unfortunately it is very rarely met with, owing, doubtless, to its being rather shy in reproducing itself. A splendid pair of plants will be found in the Kew collection.

*A. striata*, Zucc. (Mexico).—The general contour of this distinct species is hemispherical. Leaves about two feet long, and about half an inch in width, acute at their apices, and longitudinally striate; young leaves glaucous, with reddish tips. The leaves gradually dilate and thicken towards the base, where they are rhomboidal in section. This and the following are very elegant plants, of much more slender proportions than the preceding species.

*A. rigida*, Zucc. (Mexico).—Leaves three to four feet long, and very slender, radiating from a central globular axis formed by their dilated bases. The lower leaves recurved gracefully, and they are longer and more slender than those of *A. striata*. Colour green.

*A. hystrix* has the appearance of a smaller and more stubborn variety of *A. striata*.

*A. lophanta*, Schied. (Mexico).—Leaves two to three feet long, and one to one and a half inches broad, of a deep bluish-green colour; margins white, with small recurved spines towards the base. In general external characteristics this most nearly resembles the next species.

*A. pugioniformis*, Zucc. (Mexico).—Plant with a graceful, rounded contour, more dense than the last; the leaves are about the same length, but more rigid, the marginal spines being better developed along their whitish margins; in fact, they are about one-third of an inch long and falcate. Leaves deep green, finely striate behind. The last two are distinct plants, and should be cultivated for variety, if possible.

*A. Ghiesbrechtii*, Lem. (Mexico).—A compact little plant, about a foot high, and of a dark green colour. The leaves are thick, lanceolate, and from nine inches to a foot long. The young leaves have falcate, dark brown spines, which latter turn nearly white with age. This is a very neat and ornate species.

*A. appanata*.—This is a robust-looking plant, rather larger than the last, and of a very distinct glaucous colour, the thick leaves, which are about a foot long, being margined with stout brown spines.

*A. univittata*, Ham. (Mexico).—A large-growing and very distinct variegated species, with leaves two to three feet long, and two to three inches broad, being margined with stout, whitish spines, which latter curve towards the apices of the foliage. The leaves are dark green in colour, with a central longitudinal stripe of greenish yellow up the centre of each. This is a symmetrical and very ornamental species, and should be added to all collections, if practicable.

## A MODEL CROQUET LAWN.

BY HENRY TAYLOR, ESQ.,

Rose Cottage, Fencote, Bedale, Yorkshire.



AT Strathfieldsaye, the residence of the Duke of Wellington, near Winchfield, in the county of Hampshire, Mr. Wm. B. Boxall has laid out a croquet lawn which is admired by all who have seen it. The following is a description, with all its surroundings. The ground, before it was laid out, was in length 50 yards, and in width 33 yards, and an oblong square. From this piece of land Mr. Boxall laid out a lawn of an oval shape, 40 yards by 26 yards, around which, to keep the balls in bound, a bank is formed, 3 feet wide at the base, and about 18 to 20 inches at the top. On the top of this bank, extending all the way round, 104 standard and half-standard roses

are planted alternately. Between every other rose-tree is a strawberry bed, which produces the most delicious fruit in the season. Then, between the next two rose-trees, geraniums, calceolarias, and other bedders are planted. The lawn on the outside of the bank is surrounded by a gravelled walk, six feet wide; next to this, on the extreme outside, is turf; then follows a low hedge, into which standard roses are planted at intervals. The four corners of the oval-shaped croquet lawn are planted with roses (about 120 in number), the dwarfest in front, rising gradually to tall standards. In the background a few evergreens are planted in the extreme corners; the spaces between the roses in front of these corners are filled with flowers of various kinds, including mignonette, marigolds, asters, geraniums, etc., etc. Adjoining the boundary hedge a rustic arbour has been erected, where persons not disposed to play at croquet may sit down and watch the game. In two of the extreme corner roseries are four large weeping roses, one of them budded with Paul's *Vivid*, in the year 1868. The buds on this tree, counted on the 4th of May last, numbered 1500. This weeping rose, when in full bloom, is a very conspicuous object, and much admired. On account of the lawn adjoining the highway, large numbers of people have, for the past two or three years, travelled long distances to see the roses and grounds during the summer months. The surface of the ground is, of course, as level as a billiard table; and altogether it is the best example of what a croquet ground should be, and forms an excellent model for those who contemplate forming a new ground for playing this interesting game.

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## CULTIVATION OF DIPLADENIAS.

BY J. W. SILVER,

Head Gardener, The Laurels, Taunton, Somerset.



**D**IPLADENIAS are so remarkably beautiful, and of such vast importance to all exhibitors of stove plants, as well as being so valuable for home decoration, that a few remarks on their general management will, I venture to hope, be of considerable service to many readers of THE FLORAL WORLD, more especially to those who are either cultivating them for the first time, or are otherwise not well acquainted with their cultural requirements. It is a matter for both surprise and regret that so few good specimens are, generally speaking, to be met with. There are certainly exceptions—as many of our leading exhibitors have shown during last summer—but, on the other hand, how many collections of stove and greenhouse plants are staged in competition for prizes without a plant, good, bad, or indifferent, of these lovely and most telling flowers forming a part of them. Apart from the exhibition table, several specimens should be cultivated in collections of stove plants grown for their flowers, for the purpose of grouping with the other things, for they are exceedingly beautiful, and very bright and effective when in bloom.



*Dipladenias* may be employed either as stove-climbers or as specimens trained to a trellis. In either case, it is advisable to confine their roots to a pot, as they are then more easily removed and examined, as occasion may require; and in the event of more root-room being required, the specimens may be readily shifted into larger-sized pots.

The mode of culture followed with very successful results in preparing plants for all purposes, is, in the first instance, to commence with them very early in the season, selecting for the purpose those the wood of which has been thoroughly matured the season previously. This is a very essential point, and one to be ever borne in mind by the cultivator; for, unless the shoots of the previous season are well ripened, it is next to impossible to obtain satisfactory results the following season. They seldom, if ever, produce strong shoots or flowers satisfactorily, when the previous season's growth is ill-ripened. Where the convenience exists for training the plants to the roof prior to their being put on to a suitable trellis—it should be done, as it enables the cultivator to attend to them much more easily, and as a rule a stronger growth and more flowers are secured, as they have the advantage of more light, and are not liable to be crowded up with other things. The wires on which they are trained should be not less than twelve inches from the glass, and care must be taken to prevent the young and tender shoots from being injured by exposure to brilliant sunshine. In the event of being unable to train the growth in the manner here advised, very creditable specimens may be secured by training the shoots to the ordinary trellis from the time of starting the plants in the spring, provided a light position can be obtained in which to place them. I have frequently grown specimens in this manner, almost equal in point of the number of flowers produced to those trained on the wires attached to the roof. Putting them on the trellises at first has its advantages, for the possibility of the buds being broken off in transferring the shoots from the roof to the trellis is thereby avoided.

In referring to the cultural details, it is necessary to say that the most important points in the production of healthy well-flowered specimens are a brisk bottom-heat during the earlier stages of growth, an abundance of atmospheric moisture, and at all times a light position without being exposed to the most brilliant sunshine.

After the usual repotting, which should be performed early in the spring, the pot should be plunged in a brisk bottom-heat—a bed of tan, with hot-water pipes underneath, answers admirably. The bottom of the bed should be kept well moistened, and to enable the cultivator to do this effectually, a few ordinary drain pipes should be placed in a perpendicular position directly over the pipes. These will maintain a thoroughly moist bottom-heat, provided water is poured down them every day. They will also assist in maintaining a moist atmosphere, as they let up steam from underneath.

Frequent syringings of the foliage are of the utmost importance. I always syringe mine morning and evening in bright sunny weather; and, in order to promote an abundance of atmospheric moisture, the floors and walls of the house should be frequently sprinkled during

the day. In syringing the plants, use tepid water, and syringe sufficiently early in the morning to enable the foliage to become partially dry before the sun has acquired sufficient power to injure it. When in active growth, copious supplies of water are necessary, but after the bloom buds commence to expand, the syringing must be discontinued, or the flowers will be injured. If they are not required in bloom at any particular period, or if time can be allowed, they should be removed to a cooler house to allow the flowers to expand gradually. From the commencement of the expansion of the blooms, shade from sunshine only must be employed, as too much shade greatly deteriorates the colour of the flowers.

The trellis best suited for specimens is in the shape of a barrel, as the flowers are displayed to a much greater advantage, and can be more readily arranged if required.

The compost in which I have found them to succeed the most satisfactorily is prepared by well incorporating together two parts good fibrous peat, and one part each of mellow turfy yellow loam, from which the finest portion of the soil has been sifted, and well decayed leaf-mould. To this may be added a few nodules of charcoal and a sixth part of silver-sand. The pots used should be perfectly cleaned and well drained, adding a few pieces of charcoal to the drainage. The two best *Dipladenias* for all purposes are *D. amabilis* and *D. amona*, both of which are extremely beautiful. The cultivator should commence with well-rooted healthy plants in five or six-inch pots. These, if transferred at once to a pot one size larger, and managed as advised above, will break strong next spring and form good specimens, and flower freely in the course of the summer. On the other hand, it will require at least another twelvemonth to bring small starved plants into a flowering state, as the growing season will be over before they recover themselves.

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**BIG VEGETABLES.**—It is a common mistake of inexperienced people, observes *the Gardeners' Magazine*, to consider size as the most important of all qualities, alike in flowers, fruits, and vegetables. Within certain limits, size is undoubtedly of importance, but the instant we favour size at the expense of colour or flavour in vegetables or fruit, we encourage retrogression. Good flavour, tenderness, and beauty of appearance are three most important qualities, and should be sought in preference to size, although, as remarked above, when certain limitations are recognized, every advance in the size of any particular vegetable is an advantage. In any and every case quality should be sought for first, and, as a rule, of two sorts equal in quality, the largest must have the preference. This subject is to be considered in connection with cultivating, as well as in the purchase of seeds. The ambition to grow large cucumbers causes many an amateur to cut for his table, as his friends, coarse fruits of great size that are simply tough, bitter, and unwholesome, instead of smaller fruits of tender texture and delicious flavour, and perfect wholesomeness. Nearly all the vegetable marrows in cultivation are too large. The largest beetroots are much more suitable for the pig trough than the salad-bowl. We have frequently advised the cultivation of the smallest, in preference to the largest, sorts of cabbage, because of their delicacy of flavour. The largest onions are the worst keepers.

**A GIGANTIC ROSE TREE.**—The east side of Hildesheim Cathedral is nearly covered by a single rose-tree, mentioned in documents nearly 1000 years ago. The stem is a foot in diameter, and it bears countless flowers every summer.—*Building News*.

## NOTES ON THE SUMMER MANAGEMENT OF INDOOR VINES.

BY JAMES CALVERT.



TO prevent mistakes, the reader must understand that these notes refer only to indoor vines. In the first place, one of the greatest mistakes inexperienced hands make consists in overcropping. Their desire to have an abundance of fruit is laudable enough; but to endeavour to make a vine carry more fruit than the limits of its roots and branches will permit, is a serious mistake. Unfortunately, no precise rules can be laid down for the guidance of cultivators upon this point, for some vines are old, and others young; while some are luxuriant and healthy, and others are weak and unhealthy; some produce large bunches, others small: and all these are considerations of which every cultivator must take note, and act accordingly. I will, however, do my best to help the young gardener and the amateur by giving a few suggestions, the observance of which may help them considerably.

But to proceed. Leave only one branch to each spur, and if there are more, remove them by breaking them away at once. To have many useless branches is to rob the fruit of much of its support, and also to exclude the light, and prevent the full and proper development of the leaves. Ever remember that a crowding of the leaves is direct injury to the next season's crop, besides doing incalculable harm to the present one. It is particularly important to preserve the first three leaves on the branch remaining, and to give them their due share of light and air; for these leaves not only render great service to the vines at the present time, but they are unseen by you and me, perfecting and maturing the bud from which it is hoped the fruit will come next year. The larger and more healthy these leaves are, the more prominent will be the bud in the axil of the leaves in the autumn, and by taking care, and encouraging the greatest possible development in these leaves, the larger will be your bunches of grapes next year. There is no reason why the pruning should be confined to the first or second bud, if the third is the most prominent. I am one of those who take no pride, because it is of no consequence, about having the old rod when it is pruned as straight as a gun-barrel, and the system of pruning to the best bud produces bunches so much larger, that I am quite content to see a few longer spurs than some of my neighbours, who seem to delight in small bunches and a straight cane, that would, when pruned, etc., serve for a fishing-rod. These remarks may appear as a digression, but they have been necessary to properly understand the importance of securing a due proportion of light, and for the proper development of the principal leaves on which so much of future success depends. It is also very important to leave one bunch only to each spur, or one bunch to every foot run of rafter, which may be considered a heavy crop for strong healthy vines. Leave two, and when practicable three, leaves beyond the

bunch. Always act on the principle that where there is room for a leaf, you will increase root-action by allowing it to remain and develop itself, so that the case may be put thus—the more leaves the more roots. Every rod ought to have a clear space of four feet to allow the laterals to extend two feet on each side.

Next in importance is the thinning of the bunches. This operation must be done with no sparing hand, if large, well-formed berries are desired. The thinning must be commenced in good time; as soon, in fact, as the berries can well be seen. Examining and thinning the bunches once a week for a month is far better than leaving all the work to be done at one time; for, by so doing, the bunches will be better formed and the berries larger. Be careful to tie out all the shoulders of the bunches in due time, as the air can then circulate freely amongst the berries. Be careful also in this stage to see that they are not chilled by a spell of cold wet and windy weather, which sometimes occurs, during the earlier stages of the development of the berries, for several days together. Muscat grapes ought to have a regular temperature, not lower by day than 75°. Black Hamburgs and Sweetwaters may be five degrees less. Black and White Lady Downs will require the same temperature as advised for Muscats. For Muscat, and other late grapes, there is nothing like keeping them steadily growing. Fluctuations of temperature from one to the other extreme is the best way to invite disease in some form or other. There are other reasons why a steady temperature should be maintained by fire-heat if necessary, because in the most favourable seasons our summers are not long enough to bring to perfection some of our best Muscat grapes; therefore fire-heat must be given to ripen them off, to make up for the deficiency of natural heat; and it is better to keep up the temperature in the earlier stages of growth, while the vines are in full activity, and while we have a full share of daylight, than it is to have to do so in the late autumn, when the vines, according to the time of the year, ought to be going quietly to rest. The temperature just given is what should be maintained by fire-heat, for by sun-heat the thermometer may rise 10°, and in the case of Muscats 15°, higher. Providing the house is ventilated, very much may be done by judicious ventilation to keep the temperature up to the required degree by shutting up early in the afternoon, so as to inclose as much of the sun's heat as possible. It is of no consequence if the thermometer does run up to 100° after five o'clock in the afternoon. Muscats should have much less top air than the Hamburgs. Open the ventilators of the house at six a.m. on fine mornings for an hour; then close the top ventilators again until the thermometer reaches 95°, and then only give just enough air to keep it at about 92°. Such treatment will invariably ripen Muscats by the middle or end of September, and secure at the same time their proper flavour, and the high finish so essential to these luscious grapes. If they are not ripened at that period, no amount of artificial heat will make up for the time that has been lost. Although it may assist them to ripen, they will be sure to be deficient in some way or other.



When red-spider once fixes itself upon vines, it is almost impossible to get rid of it. It is, therefore, much the safest plan to keep that pest as far in the distance as possible. It delights in hot dry corners where moisture is the least felt, and where the air cannot circulate freely. Let, therefore, a humid atmosphere be maintained, especially in the hot parching weather we very often experience in the month of July and August. I do not advocate the syringing of vines after they are once fairly started into growth, but sufficient moisture may be easily obtained by damping the floors and stages three or four times during the day, according to the state of the weather. A word of caution is necessary, and that is to avoid shutting up the house when the atmosphere is heavily charged with moisture. Damp down the house, and shut up half an hour afterwards, if you want to avoid an attack of mildew. Should red-spider occur, increase the atmospheric moisture, and give the vines a thorough soaking of water at the roots.

This brings me to the subject of watering, and let me tell you that the largest crop and best grapes in every way that I ever grew has been in summers when the rainfall has been the greatest. But I must tell you my vine borders are not rich, although well drained, for I do not believe in very rich borders, and the roots are all outside. This is a sufficient proof that vines require an abundance of water when in full growth. A vine border, ten feet in width, and thirty feet in length, should have three hundred gallons of water at one time, and if it is liquid manure of moderate strength, so much the better. If the weather is dry, give the border the first soaking just as thinning the fruit is commenced, and repeat it three or four times during the season. Always bear in mind that gentle showers and hasty storms do not afford sufficient moisture to reach the bottom of the border, so that artificial watering is necessary in showery weather, if all the roots are to have their share of moisture.

Air-giving is one of those questions on which it is difficult to write. All plants should have a judicious supply of air, and in the case of vines there should be no exception, for without it they can neither remain long in health, nor can they make a satisfactory progress. Even in the summer months there will be many days when the required degree of heat may be obtained if there is no air given; but open the ventilators, and if the thermometer goes below the desired point, light a fire early in the day, that some amount of fresh air will be admitted, and a proper heat maintained. The vines will be much stronger and healthier, and the chances of an attack of mildew and red-spider much less than would be the case if the vines were stifled in a close unhealthy atmosphere.

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**NEW GARDEN BOOK.**—Mr. Alfred Smee has in the press a volume entitled "My Garden," in which he gives a complete description of his experimental garden at Beddington, in Surrey, and details the results of his experience in the culture of flowers and fruit—of these nearly 700 species and genera are described. The volume also treats generally of the natural history, geology, and antiquities of the neighbourhood. It is illustrated with 1100 wood engravings, executed expressly for the work.

## CULTIVATION OF CINERARIAS FOR THE CONSERVATORY.

BY A KENTISH GARDENER.



INERARIAS are so exceedingly valuable for the embellishment of the conservatory, and few amateurs succeed so well as they could wish in their cultivation, that at this moment a few practical hints and suggestions cannot prove otherwise than useful to those who are anxious to develop the capabilities of these flowers to the fullest extent. It is now too late to say much about seed sowing, but as that is so simple a matter it can be well passed over, and the directions about to be given confined exclusively to their after management. The cultivation of offsets and seedlings excepting during the earliest stages of growth differs so little, that one set of instructions will apply with equal force to both. The way to secure a stock of offsets by which the named varieties are propagated, and the best of the seedlings are perpetuated, is not so well known as raising seedlings, and a short description thereof will probably be of considerable service. To avoid occupying more space than possible, we will assume that the old plants when they ceased flowering, were placed in a cold frame, and protected from the frost when necessary. These, if they were watered about twice a week, will begin to show signs of pushing up a crop of offsets. Now, the way to deal with them is to prepare a frame by placing it in a shady position, where the sun will shine upon it early in the morning and late in the afternoon only, then put over the bottom of the frame eight inches of fine sifted cinder-ashes, in which the pots are to be well and carefully plunged. Next prepare some good rich compost of the following mixture—leaf-soil and good rotten dung equal parts; to two pecks of each add two quarts of coarse grit or silver-sand, the whole to be sifted through a fine sieve and well mixed together. Before plunging the plants, take each one to the potting bench and carefully remove from round the sides of the pots about two inches of the old soil; never mind disturbing a few of the old roots, as their place will soon be supplied with new ones, but be careful not to interfere with the crown of the plant. Fill up the space with the prepared compost, pressing it pretty firmly with the fingers, then give them all a gentle soaking of water, and plunge to their rims in the ashes in the cold frame. After this keep rather close for a fortnight, and give little or no water, but damp the leaves of the plants during the evenings of hot sunny days, but avoid doing so during dull or wet weather, as the evaporation is not so rapid as is the case with plants in a growing state and in an exposed position. As the nights become warmer, and the plants begin to strike out fresh roots, which they will in the course of three weeks from the time of being dressed, they will be benefited by more air, and towards the end of June, when there is a prospect of fine nights, the light might remain off all night, or be put on again in the evening if the weather is unsettled.

If left off during the night, they should be closed again the next morning, and be tilted at the back with a wedge or block. To any one who has not so treated them it is surprising how they enjoy the cool night air and the heavy dews; and then partially closing the lights during the day arrests evaporation to such an extent that the progress they make when carefully attended to is quite astonishing. They want water occasionally, but not half so often as when more exposed to the sun and drying winds. During an experience extending now over some years, I have adopted many plans to rest them and to secure a supply of young plants, but none have been found equal to that above detailed. It is quite true it is somewhat more troublesome than others which have been tried, but the success attending it more than compensates for the little extra trouble of management.

If a more simple plan is desired turn the old plants out into a bed of rich soil, specially prepared upon a north border, about the first week in June. Remove all decaying leaves and crocks, and fill up round the ball of the plants with some nice fine earth, and then water them. These want more water during dry weather than those grown in a frame, and will frequently want weeding, and the surface between the plants occasionally stirred up with a fork. In every case of growing them it will be necessary to look carefully after slugs, as they are great enemies to them. From such treatment as here detailed I have secured an excellent stock of plants for the next season's supply, but they do not come out so clean and strong as those grown in a frame. But as every one has not the desired convenience, this method may be recommended as likely to produce a satisfactory result, and therefore it may be useful to those who cannot carry out the first.

With respect to taking off the offsets, it must be said that those requiring an early display of bloom, must take them off by the middle of August. For ordinary uses, three dozen plants will suffice. In selecting the young offsets, choose the strongest and best rooted, but in removing them from the old stools some care is necessary, otherwise those that are to remain will be injured by the process. I have found a pointed stick of great service in disentangling the roots from the ball of the old plants, and perhaps this is the best instrument that can be used for the purpose, because if a knife is used, many roots not connected with the plant it is desired to obtain will be severed, to the injury of those remaining. Add to the soil recommended for top-dressing an equal part of good mellow loam. In such a mixture pot the plants singly in three-inch pots, well-drained and thoroughly cleansed before using. Give them a gentle sprinkle of water, after which, if there are a couple of hand-lights to spare—which most likely there will be in every well-ordered garden at this season—place them under a north wall, in which the fresh-potted plants can be placed, and kept close for a week.

Having arrived at this stage, the offsets require exactly the same treatment as seedling plants recently potted off, and we will now proceed to speak of both. When first put singly in pots water must be given sparingly, but at all times during parching weather a gentle dew from a fine rose in the evening will help them considerably.

Increase the amount of air gradually until the lights may remain off at night, which they may safely do after the plants have been in that position about eighteen or twenty days, unless there are signs of rain or a heavy tempest. As soon as the small pots are well filled with roots, they should be transferred to others one or two sizes larger without delay, as it is most important to prevent them becoming pot-bound, until they are put in the pots in which they are to flower. The size of the pots must be regulated by the purpose for which the specimens are required, but for general purposes those six or eight inches in diameter will be found quite large enough.

In preparing the soil for future pottings, do not sift it, but break it up moderately fine with the spade, reduce the quantity of leaf-soil to one-half, as in the previous mixture, and add another portion of loam instead, with the other already recommended. It will be found that the roots work more freely in unsifted soil, after they are once established in pots, as it does not become so close, and it is not likely to retain water to a prejudicial extent, as is the case with sifted earth, although such, for young and tender plants, is desirable; but in that stage extra care is always given to the subject of watering.

As it is important that they should not become pot-bound until they are wanted to flower, they must be frequently examined to see when the pots are full of roots. They should be shifted into every successive sized pot according to the size the plants are wanted, but, as a rule, they should always receive their last shift, at the latest, two months before they are wanted in flower—ten weeks would not be too long for those that are to flower early; and I should recommend that not larger than eight-inch pots be used for this purpose. With those for succession or for exhibition, the case is different, as there will be a longer season of growth, so that the cultivator can use his own judgment in the matter, according to his wants and convenience, and the purpose for which they are required. But if for exhibition, let me urge every intending exhibitor to consult minutely the schedule issued by the society he intends to exhibit at, so that there may be no mistake about the size of the pot, they are to be shown in. This should be done, if possible, previous to giving the last shift. The cold frame or pit is undoubtedly the best place in which to grow them during the autumn months, and in such positions they require a bountiful supply of air on all favourable occasions. But when there are signs of severe frost, which sometimes occur during the second or third week in November, they should be taken to the greenhouse, where they may receive the aid of fire-heat if required. Stand them in a light and airy position. If in a span-roofed house, so much the better, especially if they are wanted for exhibiting, as it is next to impossible to grow a good symmetrical plant in a lean-to house, unless the plant is turned almost daily. During the growing season avoid the use of strong stimulants; a few doses at intervals of a week each, when the flower-stems are pushing up, is all they require; for myself, I never use stimulants before that time, as I feel satisfied it only tends to create a weakly growth, whereas we should endeavour to secure a sturdy



compact habit in the plant, which can only be done by refraining from giving sudden excitement. A free and judicious supply of air, and no forcing, is the secret of success in this stage of their culture. I need hardly say that they require an abundance of space, that each plant may have room to develop its leaves without crowding. They will want careful attention in fumigating on the appearance of green-fly, and the cultivator will find it help them amazingly if when they are brought into the house the pots can stand upon a layer of damp moss; this keeps the bottoms of the pots, as well as the air of the house, in a moist condition, so favourable for their well-doing. As the flower-stems are advancing into bloom, it will be necessary to remove some few leaves from the centre of the plants, otherwise they impede the rising of the stem; but this more generally applies to the dwarf, close-habited varieties.

It is perhaps more troublesome to propagate and grow a stock raised from offsets than from seedlings; but the little extra difficulty is more than repaid as the cultivator has the advantage of knowing that he is growing only such as are first-rate, instead of having a few good varieties and a large number of bad ones, as is the case when the stock is raised from seeds. For those who wish to commence with a named collection, the following will form a good selection. The plants should be ordered at once, to insure their delivery as soon as they are ready.

*Agrippa*, white, rosy crimson edge, good quality, dwarf and free; *Alba purpurea*, white, deep purple eye; *Auricula*, white, with heavy tip of blue; *Bella*, magenta, small white ring; *Bertie*, white, purple edge; *Blue Beard*, deep blue; *Bridesmaid*, white, purple margin; *Brilliant*, crimson, free habit; *Celestial*, white, narrow edge of blue; *Chancellor*, deep purplish crimson, white circle round disc; *Charles Dickens*, white, rosy crimson edge; *Duke of Cambridge*, crimson self; *Eclipse*, rosy carmine self, fine form; *Flora*, pure white, purplish crimson edge; *Flower of Spring*, large white, with rosy purple edge, dark disc; *Ino*, white ground, heavily tipped crimson; *La Belle Hélène*, white and light blue; *Lord Amberley*, deep rich plum, fine; *Mazeppa*, crimson edge, white centre; *Meteor*, crimson, white ring; *Miranda*, white, with blue edge, light disc; *Miss Burdett Coutts*, white, blue tip; *Miss Smith*, white, blue edge; *Multum in Parvo*, white, deep blue tip, large; *Orb of Day*, rich glossy crimson, white ring, round disc, large and fine; *Pandora*, white, claret tip; *Queen Victoria*, crimson, white ring; *Reynolds Hole*, scarlet crimson; *Snowflake*, pure white; *Sunset*; *Uncle Toby*, deep purple self.

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A CHEAP AND CAPITAL SALAD.—Take one pennyworth of mustard and cress, two pennyworth of watercress, two pennyworth of cooked beetroot, and a four-penny head of celery; cut the beet into small dice squares; take a glass, or silver dish; pile the beet into pyramids, do the same to the celery and watercress, and arrange all round the dish; heap the mustard into a pile in the centre; boil two eggs hard, take out the yolks, and mix them with a little mashed potato, a tablespoonful of vinegar, half a tablespoonful of Harvey's sauce and ketchup, pepper and salt, two tablespoonfuls of milk, the same of oil, a salt-spoonful of sugar, pour this over the whole, and you will be well satisfied with the result.—*Food Journal*.

## THE GARDEN GUIDE FOR JUNE.

**KITCHEN GARDEN.**—Stake runner beans on the north side of the rows, unless they run north and south, which is the best, in which case stake them on the west side, and hoe up. Sow lettuce, parsley, endive, turnips, coleworts, and cabbages. Plant out celery, and water abundantly; if convenient, shade the trenches for a week after planting. The early crops to be earthed up as soon as the plants have attained a good size. If the ground is dry, give a heavy soaking of water the day before intending to mould them, and be careful that the soil is nearly dry, or at most only moderately moist, when the moulding is to be done.

Sow two or three different sorts of lettuces, and let Dixon's Champion Cos be one of them. Plant out on heavily-manured ground. Some should also be sown where they are to stand. Parsnip and beet require now a final thinning; there is no gain from crowded beds. Potatoes to be frequently hoed between. Tomatoes will bear more abundantly, and occasion less trouble, if constantly stopped before the fruit. Give them plenty of water, and mulch the surface with rotten dung.

**FRUIT GARDEN.**—Apple trees need a careful inspection, pruning-knife in hand, to remove spurs and branches that have perished through loss of sap. Tie in espaliers at once, before the shoots are set in a bent position; use the engine smartly to wall trees and bushes; nail in the wood to be kept on wall trees, and remove, but not too much at a time, all superfluous wood. We must again object to the too common practice of laying in all the wood that can be obtained, till the walls are literally felted with young shoots; one-half of these can never ripen so as to be of any use, and the keeping of an excessive amount of spray, defeats its object—the general remark that “we don't know what we may want” being founded in a misapprehension of the subject altogether. We have sometimes seen walls covered with at least three layers of shoots one over the other, and we have no longer been in a mystery that though the trees grew well, they produced but little fruit. Wall trees trimmed up towards the end of the month will have time to ripen their wood; if neglected beyond that period it will be too late to do justice to them. Strawberries are pushing their runners freely, and whatever stock is required should be taken only from the strongest runners, which put in three-inch pots and water as required and remove as soon as they are well established.

**FLOWER GARDEN.**—The first or second week in June is a good time to sow any of the quick-growing annuals for autumn display. The blue *Nemophila* blooms beautifully, if sown at the end of June; better by far than from spring sowings. Balsams, Asters, and Stocks to be planted out where they are to flower. Sow Brompton and Queen Stocks. Bedders to have every necessary attention to regulate the growth and display the bloom; peg *Verbenas* and other trailers as soon as they need it. If the ground is very dry, loosen the surface with the hoe between the plants, and, if necessary to

water, soak the ground well. Plants running away to leaf to have no water; and where *Tropæolums* grow rank, remove a few of the leaves, so as to make more room for the blossoms to be seen. Bulbs are frequently lost through inattention at this time of the year. As the leaves decay, all those that are usually taken up should be lifted and laid aside in a dry shady place, with earth over them, to ripen. They should then be cleared and stowed away, all named kinds with their tallies, so that at the next planting there need be no mixing of colours, or regrets for the loss of choice kinds through leaving them in the ground to be chopped up through some digging operation. *Chrysanthemums* in the open ground to be topped again, and the soil between them lightly pricked over with a small fork, and some quite rotten dung worked in. It will be found that they always root near the surface, and a dressing of dung will greatly help them through a period of drought, and save the labour of watering. *Tritoma uvaria* and varieties require abundance of water, and especially if in pots. *Liliums* the same: when throwing up their spikes they can scarcely have too much. *Ixias* and other Cape bulbs in flower need the same treatment; after flowering lessen the supply, but allow free growth, that they may die down and ripen naturally, during which process let them go quite dry.

*Propagate* at once Neapolitan Violets, by dividing; Pansies, by cuttings and layers; Pinks, by pipings and cuttings—if the latter, dibble them into pans, and cover with bell-glasses; put pipings in the open ground, in a shady place; *Chrysanthemums*, by cuttings, for blooming under glass in pots; Roses, by cuttings, and half-ripe wood; and any summer-flowering plants wanted for late blooms under glass; also *Iberis sempervirens*, the best of all spring flowers.

*Budding Roses*.—Make ready to work the strongest briers as soon as plump buds can be obtained of the choicest varieties. Buds that remain dormant till the next spring do not generally make such good plants as buds that start away soon after being entered, and make ripe hard shoots before winter. We have found that when the shoots from the buds of the season were very sappy, a gentle lift of the stock by means of a four-tined fork, early in October, gave a check that hastened the ripening, and prevented loss in winter. We mention this now, because some propagators prefer dormant buds, because of the risk in winter; whereas pushing buds can be used with equal safety, if means are resorted to to check the growth in time. Another matter worthy of mention is, that the wild wood should not be cut away severely before entering the buds, as a loss of it checks the flow of sap, and defers the complete junction of the two barks.

**GREENHOUSE AND STOVE.**—The inhabitants generally of these structures also require attention. Turn out for the summer those that require to be in the open air for the completion of their growth and the ripening of their wood. A great many of these are suitable for decorating banks and odd places about garden seats, or for groups on the terrace, which is a more profitable mode of disposing of them than hiding them away among the sheds and

outhouses. Take care in all cases to guard against worms finding entrance to the pots, and top-dress at once any that require it.

*Azaleas and Camellias*, if still under glass, must have air night and day, and the floors kept damp. Use the syringe regularly till the flower-buds show at the points of the shoots, and then discontinue the use of the syringe. *Pelargoniums* as they go out of bloom to be cut down, and placed in a warm, sheltered, and rather shady place for a week, then to be put in the full sun, and kept rather dry at the root, with occasional sprinklings of the stems and leaves till they break, and then to be repotted back into small pots with sound lumpy turf to make their new roots in.

*Hard-wooded Plants* requiring a shift this season must have it at once, or the time will go by for them to derive full benefit from the operation. The most important matter of all is to secure good drainage, and to use the compost in as rough a state as possible consistent with the size and nature of the plant. Whenever the cultivator is in doubt about the best soil for any hard-wooded plant, he will be pretty safe in using half peat and half loam, both in a turfy and sweet condition—the more elastic the better.

*Soft-wooded Plants*, such as *Cinerarias*, herbaceous *Calceolarias*, Chinese *Primulas*, *Pansies*, *Pyrethrums*, etc., should be raised from seed now in quantity. If *Primulas* were sown in April for early bloom, it will be as well to sow again for a successional batch. Remember that to grow bad seed is just as much trouble as the best, so that the question of cost of seed should not be considered too closely. Procure the best that can be had from houses such as advertise in this work, which are known to be above the shabby practice of mixing or misdescribing, and grow them in a good compost from the first. Soft-wooded plants rarely do any good if grown slowly; they need abundant nourishment, and if kept stout and strong rarely suffer from vermin. It is the bad practice of starving seedlings in the seed-pans that creates the principal trouble of getting them clean afterwards.

*Fuchsias* must be syringed twice a day, and have moderate shade. Fine plants in comparatively small pots will be greatly benefited with weak liquid manure every three or four days. They should be propagated now in quantity for next year's supply. The smallest cuttings make the best plants, and there is no need to cut to a joint. A mild bottom-heat will hasten the formation of roots, but it is not needful, as if shut up in a cold frame, and shaded and regularly kept sprinkled, they will be well rooted in a fortnight. It is a saving of time in the end to put all cuttings singly in pots at this time of year, as they can be allowed to fill the first pots with roots, so as to grow strong from their first start. In preparing pots for the cuttings, use small 60's or thumbs: put a mixture of turf and old dung over the crocks, and fill up with half sand and half leaf-mould, in which the cuttings will root as quickly as in sand at this season, and have something to live upon while filling the pots with roots. This is the best method for amateurs who are much away from home, as the single cuttings require less care than when dibbled into sand only in shallow pans.





## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

### PELARGONIUMS FOR ALL PURPOSES.

**LARGE-FLOWERING VARIETIES.**—Admiration, Alba formosa, Bacon, Brigantine, Emperor, Charlemagne, Charles Turner, Claribel, Corsair, Duke of Edinburgh, Harold, Hebe, Hermit, Heroine, Lady of the Lake, Lord Clyde, Lord Napier, Maid of Honour, May Day, Milton, Mary Hoyle, Mr. Rassam, Nabob, Olivia, Orange Spot, Pashia, Pollie, Prince of Denmark, Progress, Queen of Roses, Rustic, Shakespeare, Troubadour, Warrior, William Hoyle.

**LARGE-FLOWERING FANCY VARIETIES.**—Agrippa, Belle of the Season, Brightness, Helen Beck, Miss-in-her-Teens, Arabella Goddard, Leotard, Delicatum, East Lynne, Excelsior, Fanny Gair, Silver Mantle, Miss Dorling, Cloth-of-Silver, Duchess of Buccleuch, Formosa, Marmion, Madame Sainton-Dolby, Andromeda, Lady Carrington, Mrs. Mendal, Mrs. A. Wigan, Lady Dorothy Neville, Princess Teck, Undine.

**SINGLE ZONALS WITH LARGE FLOWERS.**—Acme, Richard Headly, Blue Bell, Diana, Pride of Kent, Furity, Thomas Moore, Windsor's Bride, Christabel, Scarlet King, Maiden's Blush, Mrs. Sach, Surpasse, Beauté du Suresnes, Madame Mezard, Gloire de Corbeny, Rose of Allandale, E. S. Dodswell, Magna Charta, Coleshill, Mrs. Keeler, Sir Charles Napier, Splendour, Ianthé.

**DOUBLE ZONALS.**—Crown Prince, Madame Lemoine, Princess Teck, Andrew Henderson, Gloire de Nancy, William Pfitzer, Victor Lemoine, Miss Evelyn, Mr. Gladstone, Louis Van Houtte, Sceptre Lorraine, Scintillant.

**ZONALS (NOSEGAYS INCLUDED) ADAPTED FOR BEDDING.**—In selecting these, form is thought less of than colour, habit, and abundant flowering. *Scarlet*—Omega, Vesuvius, Warrior, Thomas Moore, Jean Sisley, Orbiculata, Bonfire, Cybister. *Orange and Salmon*—Excellent, Hibberd's Orange Nosegay, Beaton's Indian Yellow, H. W. Longfellow, Harkaway, President Barberot. *Crimson and Purple Tinted*—Emily Morland, Mrs. Laing, Le Grand, Claude Lorraine, Duchess of Sutherland, James Crute, Black Dwarf, Bayard, Waltham Seedling. *Rose and Pink Tinted*—Christine, Advancer, Beauty of Lee, Hibberd's May Queen, Kate Nicholson. *Cerise*—Tristram Shandy, Lion Heart, Lucius, Cherry Lips. *Lilac and Purplish Rose*—Amy Hogg, Lady Kirkland, Duchess, Dr. Hogg, Blue Boll, Lilac Rival. *White*—White Wonder, White Princess, White-flowering Ivy-leaf.

**GOLDEN ZONALS FOR POT-CULTURE.**—Under this head we group the best of the so-called "Golden Tricolors," which, without doubt, are the following: Turner's Achievement, Rev. R. E. Benyon, Howarth Ashton the Moonstone, Lady Cullum, Lucy Grieve, Miss Batters, Mrs. Headly, Peter Grieve, Prince of Wales, Sir Robert Napier, Sophia Dumaresque.

**SILVER ZONALS FOR POT-CULTURE.**—Under this head we place the cream of the so-called "Silver Tricolors:" Banshee, Mrs. Colonel Wilkinson, Mrs. Rousby, Caroline Longfield, Mrs. J. Clutton, Miss Burdett Coutts, Lass o' Gowrie, Impératrice Eugénie, Glen Eyre Beauty, Mabel Morris, Mrs. R. Wynn, Queen Victoria.

**GOLDEN ZONALS FOR BEDDING.**—Louisa Smith, Miss Batters, Madonna, Mrs. Pollock, Sophia Dumaresque, Sophia Cusack.

**SILVER ZONALS FOR BEDDING.**—Italia Unità, Nydia, Queen of Hearts, Impératrice Eugénie, Flying Cloud, Charming Bride.

**BRONZE ZONALS FOR POT-CULTURE.**—Harrison Weir, Reine Victoria, Impératrice Eugénie, Beauty of Riverdals, Black Prince, Mrs. John Lee, Bronze Model, Waltham Bronze, Painted Beauty, W. R. Morris, Black Douglas, Napoleon III.

**BRONZE ZONALS FOR BEDDING.**—Egyptian Queen, Kentish Hero, Mrs. Lewis Lloyd, E. G. Henderson, Impératrice Eugénie (Downie), the Moor, Mrs. George Gordon, Danae, Mrs. John Lee, Empress of India, Rev. Mr. Radclyffe.

**WHITE AND CREAMY VARIEGATED FOR BEDDING.**—Albion Cliffs, Bright Star,

Flower of Spring, Silver Chain, Bijou, Oriana, Snowdrop (Carter), Queen of Queens, Daybreak, Princess Alexandra, Waltham Bride, Avalanche.

**GOLDEN-LEAVED FOR BEDDING.**—Crimson Banner, Golden Banner, Crystal Palace Gem, Star of Gold, Gold Circle, Creed's Seedling, Golden Fleece, Little Golden Christine, Yellow Boy, Gem of Brilliants, Jason, Waltham Gem.

**IVY-LEAVED FOR BASKETS.**—Gem of the Season, Lady Edith, Bridal Wreath, Willsi Rosea, Fairy Bells, Elegans floribunda.

**VARIEGATED IVY-LEAVED FOR BEDS AND BASKETS.**—Aurea variegata, Compactum, L'Elégante, Peltatum fol. var., Silver Gem, Duke of Edinburgh.

**HYBRIDS FOR BEDDING.**—Bridal Ring, Britannia, Diadematum, Lady Plymouth, Ignaescens superbum, Lady Mary Fox, Sharnland Pet, Unique Crimson, Unique Purple, Unique White, Unique Scarlet, Unique Lilac.

## NEW PLANTS.



**RIESIA BRACHYSTACHYS** (*Floral Mag.*, New Series, Plate 1).—

A fine bromeliaceous epiphyte, producing a fine scape of orange and crimson-coloured flowers.

**GLADIOLUS NESTOR** (*Floral Mag.*, 3).—A very fine garden variety; the flowers large, the colour clear yellow, richly and elegantly striped with red. As yellow gladioli are, like yellow roses, scarce articles, Nestor is to be prized, especially as the plant is more robust in constitution than the average of yellows.

**MACROZAMIA CORALLIPES** (*Bot. Mag.*, 5943).—A fine cycad from New South Wales. Dr. Hooker says it has rarely been his good fortune "to be enabled to represent a new and remarkable cycadeous plant in both flowering and fruiting condition; such, however, is now the case, thanks to Mr. Bull, F.L.S., who imported the subject of the accompanying plate from New South Wales, and brought two specimens of it to such high condition that both male and female cones were produced during the present year, and within a few weeks of one another. Unfortunately, the male cones ripened so long before the female were in good condition, that fertilization was not possible by these. Mr. Bull has, however, used the pollen of *Macrozamia spiralis* for this purpose, and fully-formed seeds have been produced, but it remains to be seen whether these contain an embryo, or only albumen; it being a well-known fact that *Cycadeæ* freely form, without fecundation, seeds which are, to all appearance, perfect; but which have no trace of embryo. The genus *Macrozamia* is confined to Australia, where it inhabits both the tropical and temperate zones, extending to the Swan River settlement in the extreme south-west of the continent. Six species are cultivated at Kew: *M. spiralis*, *Frazeri*, *Preissi*, *Macleayi*, *Macdonelli*, and *Paula Guilielmi*, to none of which does this bear any resemblance at all, nor does it coincide with the characters of the two other species, described in Miquel's monograph of the order: *M. Peroffskyana* and *Oldfieldii*."

**BULBINE MACKENI** (*Bot. Mag.*, 5955).—A pretty South African liliaceous plant, the flowers golden yellow.

**EXANTHEMUM PALATIFERUM** (*Bot. Mag.*, 5957).—An extremely pretty acanthaceous plant, with variegated leaves and lilac or scarlet flowers.

**DRACÆNA LUTESCENS STRIATA** (*Illustration Horticole*, 72).—A very fine dracæna, with the habit of a recurved agave; the leaves long and arching gracefully, their colour fresh grass-green above, yellowish green on the underside.

**ODONTOGLOSSUM LUTEO-PURPUREUM**, v. **SCEPTRUM** (*Illustration Horticole*, 73).—A splendid variety of a well-known orchid, the flowers clear yellow, heavily blotched and spotted with cinnamon-brown.

**KNIPHOFIA CAULESCENS** (*Bot. Mag.*, 5946).—A showy South African liliaceous plant, differing from *K. (Tritoma) uvaria* in its smaller size, and the formation of a distinct stem aboveground. "It will never," says Dr. Hooker, "replace the gorgeous *K. uvaria* as an ornamental border-plant, even if it is as bardy, which is very doubtful."

**SALVIA RUBESCENS** (*Bot. Mag.*, 5947).—A beautiful Andean Sage, with showy scarlet flowers.

**SENECIO PULCHER** (*Bot. Mag.*, 5959).—A fine composite annual, growing one to four feet high, with flowers two inches and more in diameter; the ray purple, the disc yellow.

**ARUM CORSICUM** (*Hooper and Co.'s Gardening Guide*, 1872, p. 136).—A fine hardy aroid, of very distinct habit, and attractive in flower. This plant represents an interesting group well adapted for pot-culture in cool conservatories, and its borders devoted to curiosities.

**GRIFFINIA HYACINTHIA MAXIMA** (*Hooper and Co.'s Gardening Guide*, p. 148, 172).—This splendid bulbous plant is not, strictly speaking, new, but it is of sufficient merit to justify our directing special attention to it here. It is of noble aspect, and produces very large scapes of handsome flowers, as here portrayed. The colour of the flowers is peculiarly delicate and beautiful, the upper segments being of a lovely lavender blue, the lower segments delicate rose-tinted white. Like a number of other bulbous plants it is of most easy culture, and, therefore, especially worthy of the attention of amateurs. There are several other Griffiniæ deserving of notice, especially *G. Blumenavia*, a beautiful species, with



GRIFFINIA HYACINTHIA MAXIMA.

showy flowers, deep flesh in the centre, shading off to rich purplish crimson. They should be both added to the most select collection of greenhouse plants.

**ÆTHIONEMA CORDIFOLIUM** (*Bot. Mag.*, 5952).—A pretty cruciferous plant with rosy-purple flowers. In general appearance this plant resembles *Iberidifolia rotundifolia*. It is a native of rocky mountains in the East, having been originally found by Labillardiere upon Mount Lebanon, where it has subsequently been gathered. It has also been found in the Sicilian Taurus. Messrs. Backhouse have lately obtained the plant from the Botanic Garden of Vienna, and through them it will be placed within the reach of English cultivators. It is quite hardy, and a good rock plant, "more likely to suffer from the damp than the cold of our climate."



## HORTICULTURAL AFFAIRS.



## ROYAL HORTICULTURAL SOCIETY.—EXHIBITION OF POT ROSES, May 1.—

This exhibition afforded the gratifying evidence that once more the cultivation of roses in pots is receiving due attention from private growers; for they were shown by private growers in larger numbers and in better condition than we have seen them exhibited for many years past; and it can be safely said that, although they were not equal to those contributed by the trade, there was not a bad specimen staged. Altogether the display of pot roses has not been surpassed for many years. The prizes in the great open class for nine specimens were taken by Mr. Charles Turner, of Slough, and Messrs. Paul and Son, of Cheshunt, both of whom staged magnificent collections. The post of honour was, however, occupied by Mr. Turner, who had Céline Forrestier, Victor Verdier, Charles Lawson, one of the best roses in cultivation for pot culture; La France, Paul Verdier, Vicomte Vigier, Marie Baumann, and Maréchal Vaillant. The most remarkable specimens in the collection from Messrs. Paul, who were second, were Elie Morel, Victor Verdier, and Dr. Andry. Messrs. J. Veitch and Sons, King's Road, Chelsea, were first in the open class for six with large, well-flowered, and remarkably fresh specimens of Victor Verdier, President, Général Jacqueminot, Charles Lawson, Glory of Waltham, and Princess Mary of Cambridge. Mr. Rowe, gardener, the Rookery, Roehampton, had a neatly-grown collection in the last-mentioned class. In the class for three, open to amateurs only, Mr. Ellis, gardener, Coombe Warren, Kingston-on-Thames, presented a splendid group, comprising remarkably fresh and well-flowered examples of Victor Verdier, Gloire de Dijon, and Général Jacqueminot. Mr. Baxter, gardener to C. Keizer, Esq., Broxbourne, and Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth, who were second and third respectively, also staged well-grown specimens, as also did Mr. Rowe. For collections of cut Roses, Messrs. Paul and Son and Mr. Rowe, were first and second respectively; but the most remarkable display of cut blooms was that produced by Mr. W. Paul, of Waltham, who in addition to a large number of stands of the leading hybrid perpetuals staged several stands of grand blooms of Maréchal Niel.

ROYAL BOTANIC SOCIETY.—LAST SPRING SHOW, May 8.—The spring season of this society was brought to a close with this exhibition, a pretty but a quite second-rate affair; the principal part of the display consisting of miscellaneous collections, which now form the staple of the spring shows held in the metropolis. The principal subjects contributed in the schedule classes were Roses in pots, greenhouse Azaleas, and herbaceous Calceolarias, and hardy and Alpine plants. The latter was exhibited in fine condition by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham.

ROYAL HORTICULTURAL SOCIETY.—EXHIBITION OF DINNER-TABLE DECORATIONS, May 15.—The exhibition of dinner-table decorations at South Kensington may be fairly considered one of the best exhibitions of its kind, for the majority of the arrangements evinced in the most marked manner that the public taste is steadily improving, and it was also apparent that the more simple the style of embellishing the dinner-table, the higher is the estimation in which it is held by the general public. The first prize for the best decorated table for twenty persons was awarded to Miss Hassard, St. Ronan's Road, Upper Norwood, who adopted a very neat but most effective and elegant style of decoration. The table was set out complete, and the floral decorations consisted of a central plain glass stand of the well-known Marchian type, and two specimens of *Pteris tremula* in the centre, and a small upright glass with a deep dish for holding water, placed opposite each guest. The central stand was most tastefully arranged: the base was filled with the flowers of a large scarlet cactus and trusses of *Stephanotis* blooms placed alternately; and intermixed with these were panicles of the feathery inflorescence of *Astilbe japonica*, and springing from the base of the stem were leaves of the variegated variety of *Cyperus alternifolius*. The groundwork of the flowers consisted of a fringe of fronds of *Pteris serrulata* and *Adiantum farleyense* alternately. The second plateau was filled lightly with salmon-coloured geraniums and fronds of *Adiantum cuneatum*, the latter so arranged as to droop gracefully over the sides of the glass, and the



cornucopia-like top was filled with the inflorescence of the *Astilbe*, inserted so as to stand upright, with spikes of a pink-flowered *Begonia* and fronds of *Adiantum cuneatum* drooping over the sides. This gave a light and elegant finish to the stand. The pots of the two specimen ferns already alluded to were placed underneath the table, so that the rims were nearly on a level with the cloth, and the surface soil was hidden with a covering of *Selaginella denticulata* and *Adiantum cuneatum*, with a few flowers of *Stephanotis* dotted about singly, and the whole finished with a fringe of fronds of the common *Lastrea* laid upon the table with the ends inserted in the soil. Between the central stand and each of the ferns occurred a Parian statuette resting on a bed of *Selaginella denticulata*. The small glasses had each a rosebud of some other flower of small size, with a small fern-frond placed in them, and a few flowers were placed to float upon the water in the dish. The fruit was placed on the table in small dishes.

AN HORTICULTURAL AGENCY has been established at 22, King Street, Covent Garden, by Mr. Kettelwell, for the purpose of affording a ready means for the disposal of surplus plants by exchange or otherwise. All the horticultural publications will be provided for the use of the members, and space will be set apart for the display of new inventions, and other matters of interest to those engaged in horticultural pursuits. Full information respecting terms and conditions of membership may be obtained on application.

HORTICULTURAL CONGRESS AT BIRMINGHAM.—Two meetings will be held at the Lower Grounds, Aston, viz., on Wednesday and Thursday during the show week, for the discussion of subjects bearing upon Horticulture. Each meeting will be opened with a short address. That on the first day by Professor Thiselton Dyer, "On Recent Progress in the Scientific Principles of Horticulture." That on the second by Thomas Moore, Esq., F.L.S., "On the Recent Progress of Practical Horticulture." The same division of subjects will be followed, as far as possible, in the papers arranged to be read each day. The reading of each paper will be limited to a quarter of an hour, and speeches in discussion to ten minutes. In order to arrange the business of the meetings, it is requested that the papers (or abstracts of them) intended to be read may be sent to Professor Thiselton Dyer, Royal Horticultural Society, South Kensington, not later than June 1. The chair will be taken punctually each day at 4 o'clock p.m.—W. T. THISELTON DYER, *Secretary for the Congress*.

## TO CORRESPONDENTS.

ACACIAS.—*B. S.*—There will be no difficulty in growing greenhouse acacias, if planted, as you suggest, in the conservatory border, in a mixture of good turfy peat, leaf-mould, and loam, and let them grow almost as they like. Cuttings of young shoots of some of the species, if taken off with a heel, strike readily under hand-lights in sandy peat during the summer, and should be grown on in pots till large enough to turn out. They may also be propagated from pieces of the large roots. The greenhouse kinds require a temperature averaging 40° all winter—it should never be lower than 35°,—and at the turn of the season, when they begin to push for bloom, more heat and moisture. The most useful kinds are to be had at all respectable nurseries.

FUCHSIAS.—*R.*—They want a sprinkle overhead every day now, and plenty of water at the root. It is astonishing how much fuchsias will drink up, and they will not grow well unless their heads are often moistened. Use the syringe morning and evening, or evening only if you are pinched for time, and let the water be tepid.

CLIMBERS FOR EAST WALLS.—*C. C.*—*Cotoneaster microphylla* (old plants), *Chimonanthes fragrans*, *C. grandiflora*, *Clematis montana*, *C. flammula*, *Jasminum officinale* (the common white). *Roses*.—Williams's Evergreen, Crimson Boursault, *Myrianthes*, Ayrshire.

*T. P. P., Moreton*.—We have in hand such a plate as you propose, and shall secure an article on the subject from one of the most successful cultivators known.

June.

**DIELYTRA SPECTABILIS.**—*J. S.*—This graceful growing herbaceous perennial is quite hardy, and is a noble addition to our border-flowers. It comes from cuttings freely all the summer. We have struck them in the open ground in sandy loam by merely turning a hell-glass over for the first few days. You may get a plant anywhere for eighteenpence, and propagate to any extent you please. As it makes a fleshy tap-root, it requires a good depth of soil.

**LILIUM GIGANTEUM.**—I would be much obliged if you would inform me in your valuable work, the *FLORAL WORLD*, how I should manage the *Lilium giganteum*, which I have had for some years in a greenhouse, but it does not flower. One summer I put it out of doors in July, and all the leaves withered one by one. Last year I put it out in May with great care, but the leaves again withered. The books tell us it is nearly or quite hardy. What am I to do with it? Could I rear the Poinsettia or a Caladium in our greenhouse, which ripens grapes?—*J. R., Ballymackeogh, Tipperary.* [*Lilium giganteum* is quite hardy on the cold clay in the northern suburbs of London, and therefore will be hardy in Tipperary, except in the colder mountain districts. You have probably kept your plant too warm, too dry, and too much shaded, and hence it refuses to flower. Our advice is that it be planted out at once, and left to take care of itself, except that during summer it should have abundance of water. If it cannot be planted now, keep it in the pot until August, and then put it out. We cannot advise you to attempt the growth of poinsettias and caladiums in the greenhouse, as they require more heat than you can command.]

**CULTIVATION OF VALLOTA PURPUREA.**—*Mrs. R., Manchester.*—This beautiful *Amaryllid* is an evergreen, and though it requires to be kept rather dry through the winter, must not be dried off so completely as to lose the whole of its foliage. It does not require a stove temperature, and will do better in a house from which the frost is just kept out, and no more, than anywhere else. Your plants being deficient of roots, take them out of the pots, remove the loose parts of the old soil, and repot them in an entirely fresh compost, consisting of fresh loam chopped up roughly, and mixed with plenty of decayed manure and leaf-mould, in the proportion of three parts loam, and a part each of the manure and leaf-mould. Use thoroughly clean pots and plenty of drainage. Press the soil firm with the potting stick, but not hard. After they are potted, give the soil a liberal soaking of water to settle it, and then place in a late vinery, or wherever they can have the advantage of a close warm atmosphere without artificial heat for a month. After that bring them back to the greenhouse, where they will have an abundance of light and air for, say, another month, and then stand them out of doors, where they will be partially shaded through the hottest part of the day, and give them plenty of water. They should remain out of doors until the end of August. If the bulbs are of considerable size now, they will produce large heads of bloom this autumn. Our reason for advising you to put the plants in a close and rather warm house for a short time is simply to induce them to root quickly, as there is no time to be lost. If they had been in ordinary health, and the pots full of live roots, nothing would be necessary farther than repotting in larger pots, using the soil as recommended above, and letting them remain in the greenhouse until the danger of frost is over, when they should be placed out of doors for the remaining part of the summer. There is no necessity whatever for dividing the bulbs unless an increase of stock is desired. We have grown them in masses between two and three feet over, and with a dozen flower-stems as thick as a man's thumb. The number of flowers on each stem when they are this strength can easily be imagined. A small bulb grown singly fails to convey an adequate idea of the capabilities of the *vallota*, when grown in large masses, and with a fair amount of cultural skill. Guard against the worms getting in through the holes in the bottom of the pots. They will not thrive any great length of time if the pots in which they are growing are infested with worms, therefore stand the pots on bricks or pieces of slate. The other enemies to contend with are slugs, and the large brown snails; both are excessively fond of nipping off the heads of bloom just as they are emerging from the parent bulb. Doubtless, they are particularly tender and delicious just at that period of their growth, and we should urge you to keep a watchful eye upon them about the time they are coming into flower.

**FILMY FERN.**—*Fern Grower.*—*Trichomanes radicans* may be obtained from any of the nurserymen who give special attention to ferns, and you may expect a nice tuft, quite sufficient to begin with, for half a guinea.





VARIETIES OF CAPSICUMS.



## SELECT CAPSICUMS AND CHILIES.

*(With Coloured Illustration of Five Varieties.)*

THE many ways in which the fruit of capsicums and chilies may be used in the kitchen will entitle them to a place in all gardens in which space under glass can be spared for their cultivation. It is not, however, for their utility alone that they are worth growing, for they are, when grown in a proper manner, highly ornamental in appearance, and may certainly claim to rank high amongst fruit-bearing plants grown for ornament. There is one point to which attention may be very profitably directed in connection with the advocacy of their cultivation for decorative purposes, and that is, the fruit does not undergo the slightest deterioration through the plants being placed in the conservatory for several months. It is not, perhaps, every one of our readers who would care to employ capsicums or chilies in the decoration of the dinner-table, yet there can be no doubt they are of considerable value for that purpose. Of course the plants must be of a proper shape, and be moreover densely furnished with healthy foliage, and also have a good crop of fruit.

It is too late in the season to say anything about their management during the earlier stages of growth that will be of service this year, and we shall, therefore, confine ourselves to a few remarks bearing more directly upon the preparation of decorative specimens. When required simply for the conservatory, it is not of much consequence what style of training is adopted, but for table neat dwarf bushes and standards on stems of sufficient height to afford a clear view across the table, are the best forms for general purposes. The production of bush specimens is a very simple affair, as all that is necessary with respect to stopping and training is to stop the leading shoots two or three times. It is rather more difficult to secure well-formed standard specimens, and a longer period of growth is necessary, as a stem twelve or fifteen inches in height must be secured before the necessary steps for the formation of the head can be taken. The most vigorous plants should, therefore, be selected for standards, and the side-shoots assiduously removed until the main stem is of the proper height. Then the point of the leader must be nipped out, and the production of side-shoots encouraged. It may, perhaps be useful to some of our readers to know that the main shoots should not be stopped until they have made from three to five joints above where the last side-shoots were removed. The branches which push from the top of the stem must be stopped when about two inches in length, and the laterals produced by them trained in such a manner as to insure a well-balanced head.

Capsicums and chilies require a generous compost, and it will be found that nothing will suit them better than a mixture of turfy loam, old hotbed manure, and leaf-mould, at the rate of two parts of the former to one part each of the manure and leaf-mould. A light and airy position in the greenhouse or orchard-house during

the summer season is perhaps the best situation that could be selected for them, although they do exceedingly well in frames or ground vineries. Indeed, they do so exceedingly well in them that those who have not filled them with cucumbers and melons may turn them to profitable account by devoting them to the cultivation of capsicums and chilies.

They require liberal supplies of water at the roots when well established, and after the fruit is set, weak liquid manure will be of great assistance. They should also be syringed frequently.

The varieties figured in the coloured plate are the *Long Red*, *Long Yellow*, *Large Purple* and *Small Purple*, and the *Red Cherry* shaped. The green fruit on the left-hand side of the plate is a representation of *Large Purple* before it has attained maturity. All the varieties in cultivation were subjected to a careful and systematic trial in the experimental garden last year, and the abovementioned were selected as the best and most distinct. S. H.

## TODEA SUPERBA.

BY WILLIAM HEARD,

Head Gardener, Belmont Hill, Lee, Kent.



O exceedingly beautiful is this fern when well grown, and, moreover, not difficult to manage, that it ought to have a place in every collection of stove ferns. So far as my experience has gone with it, I am unable to recommend it for greenhouse culture; but, in an intermediate house, I have experienced no difficulty in growing it in the best possible manner. Many fern-growers, I am aware, have not succeeded so well as they could wish with this fern, but from what cause I am unable to say; for, with the simple system of culture that will be explained, it appears to be very tractable, and most easily managed.

One of the most essential points in its management is, to select a comparatively dark corner in the fernery, where it will enjoy perfect immunity from the effects of sunshine. In the majority of cases, it will also be necessary to place it under glass, for the double purpose of maintaining a certain degree of moisture about the fronds, and for protecting it from draughts of air. The latter, whether hot or cold, are highly injurious; and, if the atmosphere is too dry, or the plants exposed to currents of air, the tips of the pinne will turn brown, and the specimens be consequently disfigured. There is, in our fernery, a very favourable nook; and we are able to dispense with glasses.

An open, porous soil is necessary, and we use equal parts of turfy peat and sphagnum moss, with a sprinkling of sharp silver sand; and, so far as the compost is concerned, it does not appear

that anything could possibly answer the purpose in a better manner. The roots run in it very freely, and, as the pots are well drained, it does not readily become sour from the presence of stagnant moisture. This is also of considerable importance, for the plants must be frequently watered, and unless the material in which the plants are is of a porous character, it would soon become sour, and the young and tender roots would soon perish. An annual shift will be quite often enough; and, in transferring them from one pot to the other, remove as much of the old stuff from the root as can be done without disturbing them materially, or injuring them in any way.

An abundance of moisture is of the highest importance at all seasons of the year; but more especially are liberal supplies necessary during the spring and summer. When grown without a glass, the fronds should be sprinkled with water, of the same temperature as the house, twice a day; when under a glass, once a day will be sufficient. Use a watering-pot, or syringe, to which a fine rose has been affixed; for the water should be applied more in the form of a heavy dew than a heavy shower.

There are several other *Todeas* which may be grown in the same manner as the preceding, but they are all of a more spreading habit. *T. Fraseri* is very elegant, as also is the new and very beautiful *T. Wilkesiana*, which was figured in the FLORAL WORLD when first introduced by Messrs. Veitch & Sons into cultivation.

## INDOOR GARDENING.

BY MISS H. J., BATH.



HAVING, for several years, seen your efforts in the FLORAL WORLD to enable persons fond of flowers to obtain their enjoyment without incurring the supposed necessary expense, I am induced to give you the result of my attempts at gardening *in forma pauperis* during the severe winter of 1870—71, hoping, by this means, to induce some to repeat the experiment, who, until now, have looked upon even indoor gardening as a pleasure out of their reach.

I must begin my account by saying that all the usual modes of window gardening were out of my power. I was spending the winter in a country house, two miles from any nursery, in a cold part of Germany; the thermometer in the sitting-room sometimes refusing to rise above  $-6^{\circ}$  Reaumur ( $17^{\circ}$  Fahr.), in spite of all efforts made to the contrary. To try and counteract this dulness indoors, I began my attempts. The prospect was not very encouraging. The year had turned, and though, with the lengthening days and more light, the dull leaden shadows out of doors would give way to a bright cobalt blue on the snow, the cold would rather increase; and months must elapse before a green leaf was seen. I wanted flowers. They could be bought in plenty in the town, but could

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not be brought home, being frozen hard and fast in five minutes after leaving the shop; so these would be useless to me. There were also baskets of "Immortelles" to be had, charming both in colour and arrangement; but I wanted something living and growing, a contrast to the death outside, so those did not do either; and I was well nigh giving up the thing as hopeless, when I chanced to light upon one of the dark-brown earthenware basins so common on the Continent. The colour is a fine chocolate, and has a charming effect contrasted with any kind of green. Into this I placed some stones, charcoal, and old moss, and one or two short pieces of ivy which I managed to get up and thaw. The ivy I placed amongst the moss at the edge of the basin, and then filled the whole with water, filling it up again as the moss absorbed it.

Here was a beginning—not very pretty, but something in the right direction, and therefore pleasant. Now I thought of adding crocuses, snowdrops, and such-like bulbs; but, on sending to the nurseryman's, found they had all been planted long ago, and dared not be moved; so that hope was at an end. There remained, therefore, nothing but to turn to outdoor resources. Now I began to seek, where the snow was thin, for bright-coloured leaves, grasses, and such plants as I could find in my daily walks; and anything I now found in this way I took up as carefully as I could, thawed it gradually (placing it over head in cold water is best), and then stuck it between the moss, where I thought the shade of green or the colour of the flower would tell to the best advantage in the general effect.

The cranesbill came at this time into great use, as the leaves were of a lovely, brilliant red long before any flowers were to be found. The moss was also replaced with new, as I could find it; and daisies were taken up as soon as the green buds showed. Before very long I could add buttercups and cuckoo-flowers; then ajuga, with its red, bronzy leaves; then, in turn, as the season advanced, gentians, *Primula formosa*, oxlips, starch hyacinths, wood anemones, chick-weeds, dandelion, blue veronica, and a hundred other things. When any plant began to dwindle, or go off, of course it was taken out, and replaced by something fresh. In this way there was constant occupation and variety, and the study it afforded for effects was a source of constant amusement. No one who has not tried it can form any idea of the beauty of these wild flowers, when seen close to the eye as these were. Later in the season, I added sprigs of trees and shrubs to the flowers, for the sake of the rich variety of green and brown they supplied.

This plan will be found, I think, to have an advantage over window gardening, as generally practised, in affording an object for a walk, which many people feel the want of at a time of year when there is little going on out of doors to attract people in general.

During the first part of the year, I found walls were my best hunting-grounds; but in England there will never be much difficulty in finding subjects. Those who live in large towns can always keep a saucer supplied, if not a basin. I had one for small subjects which made a very pretty "bit" placed on a table near the window. I amused



myself a good deal by following out some general plan or idea in its arrangement—such as the effect of two colours, grey lichen, we will say, and the small, blue gentian. Then, in my next walk, I would look for a colour to mix with it—such as a red leaf or pink flower, and watch the effect on the blue.

If we look around, I think we shall find that God in His mercy has placed His best gifts within the reach of all, only requiring we should use a little exertion to obtain them. At any rate, during these long winter months, I found my greatest and most unflinching pleasure was obtained at the cost of a *basin*, some *charcoal*, and a *little trouble*.

## GARDEN CROCKERY.—POTS, PANS, AND SAUCERS.

BY W. D. PRIOR, ESQ.



THE flower-pot of the period is a reproach to the inventive powers of the present race of horticulturists. Ugly in form and coarse in texture, it does not even fulfil to the greatest advantage the purposes designed, inasmuch as the largest bulk of soil is at the surface, and the narrowest at that portion of the vessel where the roots are placed, and from which the nourishment of these roots should be supplied. The one virtue linked to a thousand faults possessed by the contrivance is, that its contents are readily turned out. Its defects might be excusable, perhaps, if used for mere temporary occupants, ultimately destined for the open ground, yet even here its mischievous structure soon becomes apparent in roots matted and tangled round the sides, leading to failure, through which subjects often bear the opprobrium, and are cast aside, of unsuitability, properly belonging to a defective method of cultivation. It may, therefore, be laid down as a maxim that the present style of flower-pot is unfitted for the *permanent* growth of plants, and that the inventor of some more rational construction will be a benefactor to the gardening community.

It may be admitted that the task has difficulties, the chief of which is the natural repugnance of the human mind to innovation, yet it ought not to be beyond the genius of a practical age; nor would the problem be long in solution if those immediately concerned in discovering improvement were to unite in throwing out suggestions to be reduced to the test of actual experiment.

By way of making a commencement in this direction, it will be well to examine the essentials of any contrivance in which plants are to be permanently cultivated. The first perhaps are simplicity and cheapness—the strong points in the present flower-pot. In these it will not be easy to surpass it. The *material*, however, may be the same, and the manipulative cost of superior adaptation of form to the end desired could be but trifling; and this brings us to a second consideration, viz.: that of obtaining the greatest possible

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quantity of soil in the place where it is wanted—equivalent to the most direct application of power—and that is, where the *roots are placed*. To effect this the present construction must be entirely reversed. The broadest part must be at the base, and the most appropriate model for the shape of an improved flower-pot would be that of the “three-legged iron pot” of Paddy’s cabin or the Gipsy’s tent. Except in special instances and for special purposes, we need not go much beyond this, were it not for considerations of re-  
potting, a difficulty we have already glanced at. The question is, then, how can this be met? Possibly the pot might be made in two pieces, the one fitting to the other with a flange, and secured together by means of a peg passed through two or three raised eyes constructed for the purpose. The second form might be that of a four-sided pot, broadest at the base; three of the sides to be cast in one piece, the fourth loose to slide in the groove, like the lid of a box. These are supposed to be constructed of the ordinary clay. We have previously suggested wooden boxes, with moveable flaps, to be secured with hook and eye, the most suitable plan for large plants, of sufficient importance to justify exceptional expense. Virgin cork would be an improvement on the wooden box, and a much more ornamental material, and not of great cost. Indeed, the application of this is yet in its infancy. Perforated zinc, or even close galvanized-iron wire, are also within the scope of experiment. Consideration and ingenuity will suggest other contrivances to attain the desired results.

Pans, being usually employed for the raising of seeds or propagating of cuttings, the *bulk* of soil is not of primary importance, ease of removal being commonly the chief point to be considered. Yet even here there is room for much improvement. Square pans have already been adopted, greatly to the economy of space. Boxes with moveable sides and loose bottoms, after the manner of moulds used in making bricks, have also been recommended as substitutes, and afford considerable advantages in the operation of transplanting, or pricking-out. However, when wood is used, the portions in contact with moisture must always be protected against its influence, or rot and disease will inevitably follow. In pots, or their substitutes, also, the means for drainage must always be provided; and to this end, holding to the principle of watering by immersion, we emphatically urge holes in the sides, and a raised foot of some kind, to permit superfluous water to drain freely away.

Saucers in the garden are unnecessary luxuries; in the “house” few plants require them; their chief function is to put to lingering death pot-plants in rooms and window-sills. Under the excuse of cleanliness such plants, unless under experienced management, are usually first soaked in water, and then allowed to stand soddening in the overflow collected in the obnoxious saucers—mostly glazed, to increase their non-absorbent power. In this piece of garden crockery no improvement is required, unless, as the Americans say, to improve it off the face of the earth.

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## NOTES ON THE WILD IVY (HEDERA HELIX, L.).

BY JAMES F. ROBINSON, ESQ.

"Creeping where no life is seen,  
A rare old plant is the ivy green."—DICKENS.



FOR some time I have been a regular subscriber to the FLORAL WORLD, and eagerly look for its monthly appearance, but nothing of late has appeared in its pages which has given me so much pleasure as the two plates, with the accompanying descriptions, of the varieties of the Ivy. Ever since their appearance, in my solitary rambles in search of muscological rarities, I have examined the wild specimens which I have met with, to see if I could detect any difference either in the outline, colouring of the leaf, or habit of



IVY FOUND IN DELAMERE FOREST, CHESHIRE.

growth; for it is my humble conviction that many more curious forms may still be found, not perhaps where most people would naturally look for them—namely, around the old weather-beaten ruin,—but in the lonely wood and by the hedge-side, clambering up the gnarled oak-trunk, or quietly creeping amongst the weeds over the moss-covered wall. It is in such places the most valuable specimens are likely to be found, not planted by the hand of man, and truly growing in a natural or wild state.

July.

I have lately picked up two specimens, the description of which may be of interest to some of the readers of the *FLORAL WORLD*; they were discovered growing in an out-of-the-way lane indirectly leading to Delamere Forest, Cheshire. Neither of the specimens exactly correspond with any of the beautifully coloured figures which may be seen—the first in December, 1869, and the next in November, 1870, of the *FLORAL WORLD*.

The above figure will convey a good idea of the size and outline of both varieties. The petioles are remarkably long and dark purple, the blade is cut out into five acute segments, the segment margins are almost entire. No. 1 slightly resembles Fig. 3 in the plate for December, 1869 (*Hedera lucida*), with this difference—the primary and secondary veinlets are almost white on the upper surface of the leaf, and, just surrounding the veins, is tinted with a light emerald green. The remaining portions of the leaf (upper surface) is of a dark bronze colour, not, as in *H. lucida*, sprinkled with light chocolate patches; all the under surface is of a rich russet brown.

The ground-colour of the leaf No. 2 is light green; just surrounding the veins is of a cream colour. In some respects it bears some resemblance to *H. argentea minor*, a leaf which is delineated in the November number of the *FLORAL WORLD*, 1871.

I think the finest specimens of the wild ivy I have ever met with was in the Vale of Gresford, North Wales, a district second only perhaps to the Vale of Llangollen for lovely scenery. In this locality the tourist is surprised, especially at this season of the year, when they are more conspicuous, to find them not only luxuriant, but in the richest profusion.

[The foregoing was accompanied with only one figure, though it appears that the author intended to forward two. The figure sent was inserted in our recently-published monograph on "The Ivy," for which use of, as well as its present appearance, we have to thank our correspondent.—Ed. F. W.]

## HANGING BASKETS OF PLANTS.



**W**HAT looks better, be it in the conservatory, stove, or fernery, than pretty hanging baskets, if well filled with plants in good health; and yet how seldom you see them used in comparison to what they should be. I cannot think why this should be the case, yet, if you notice the greenhouses you go into, for every one that has a handsome show of baskets, you will find ten without a sufficiency. I grant there may be one or two, but they are not used half as much as they should be.

Baskets of plants are very easy to have in perfection; you can select plants according to whatever heat you intend to grow them in. Your baskets you can buy at a high or low price, according as you feel disposed; but often those that are bought at a low price and tastefully filled with plants, look much better than more



expensive and elaborately got up affairs badly filled. I always like to see the wirework painted dark green. Some people paint it bright colours; this, I think, quite spoils the effect of the flowers, as they are quite gay enough in the way of colour without any addition in the way of paint; the dark green shows up the bright colours of the flowers much better. The baskets should be lined with a thick layer of moss, so as to prevent the soil dropping through (and it also looks much nicer if you have it of a nice bright green); then you should put some broken crocks, and then fill up with whatever compost is best suited to the requirements of the plants you intend filling them with.

In the fernery, I think nothing looks better than baskets of *Adiantum colpodese*. I have seen some filled with this, and they are perfect balls of fronds. Of course there are many other kinds, too numerous to mention, suited for the cool as well as the stove fernery. For the conservatory there are plants without number, nearly all of which can be grown in baskets. For winter blooming there is nothing better, or will look more showy, than baskets filled with Rollison's Unique geranium or Scarlet *Tropæolum*, as they will continue in flower all through the winter, and will hang down all round. A basket never looks well unless there is some drooping flower round the edge. I have seen a basket look very pretty with plants of the variegated ivy-leaved pelargonium *L'Elégante* round the edge, and then in the centre a nicely-grown plant of fuchsia *Mrs. Marshall*. Then, again, one composed of silver variegated geranium *Lady Plymouth*, and bright blue lobelia; another with blue convolvulus, and *Christine* in the centre; in fact, any flower that suits and is put in with good taste will look well. For large baskets that are hung level with the eye and for autumn flowering, different kinds of lilioms look very handsome; but if they are hung up high the effect will be quite spoilt. Some planted with mixed foliage plants, such as variegated sedums, *echeverias*, *iresines*, *centaureas*, *coleus*, etc., etc., look very effective, and show up well amongst others filled with flowering plants. Indeed, if you have many baskets I should always advise one or two to be filled with foliage plants.

The great point in keeping the plants in the baskets fresh and in good health, is to give them plenty of water in the growing season. At all times they will require this, but more, of course, at the above time. If the baskets are hung very high, you had better have some wire rope and a little pulley to lower them, as it is very troublesome getting up to them with steps every morning, which must be done, or your plants will soon look brown and withered; and it is far better to be without baskets, than to have them in a state which can easily be avoided by giving them a little attention every morning, and any one who will do this will be well repaid for the trouble by the effect hanging baskets will have in their houses.

*Upper Norwood.*

A. H.

## EARLY-FLOWERING PELARGONIUMS FOR CONSERVATORY DECORATION.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington.



THE cultivation of early-flowering Pelargoniums forms, as possibly many of the readers of the *FLORAL WORLD* are aware, a very large and important branch of the trade of a grower of flowers for Covent Garden Market. We therefore grow these varieties largely, and when sending the other day for a load of plants in five-inch pots, with heads of bloom from twelve to fifteen inches in diameter, I could not help feeling what a pity it was that they are not grown more extensively in private gardens for conservatory decoration in early spring. The flowers are not so fine as those of varieties flowering later in the season, but they are produced in greater abundance, and the habit is rather better. It would not be fair to compare the flowers of the two classes, for the early-flowering varieties bloom so early with a proper system of management, that they should be out of bloom and removed from the conservatory by the time the later blooming kinds are ready to take their place. For market purposes we grow *Gauntlet* the most extensively, because it can be had in bloom during the winter, and is the most popular, but the private cultivator should grow about twelve sorts for the purpose of affording as great a variety as possible.

With proper management, which, by the way, I shall describe as we proceed, they may be had in full bloom by the time the chief bulk of the bulbous plants, such as hyacinths and tulips, are past their best, and they come in well for filling up the blank between the hyacinths and the later-flowering geraniums, fuchsias, and other subjects which come into flower at the same time. Although the following remarks will be really a description of the system of growing them by the hundred for market purposes, it must be understood that they apply with equal force to the cultivation of a dozen or so.

The best plan for amateurs to adopt who have no stock for furnishing a supply of cuttings, will be to procure at once from their nurseryman young plants, which were struck early in the spring, or some time during the autumn of last year. Procured now there will be sufficient time for them to become by the autumn fair-sized specimens with the wood thoroughly ripened and the pots full of roots, without which they will not bloom satisfactorily the following season. But for the guidance of those who may wish to raise a stock from cuttings next year, it will be well to say that nice firm-growing shoots are the best for making cuttings, and should be taken off early in March, and inserted singly in small 60's, and be placed in the propagating pit or cucumber frame until nicely rooted, and then be removed to the ordinary greenhouse until the end of May.

At this stage the plants must be removed to the cold frame, but, before doing so, it will be well to give them a shift into large 60's, and then, with a fortnight's shelter in the frame, they will be in good order for going out of doors. Cuttings struck now will make nice little plants for next year, and will form good foundations for large specimens in the year following. They may also be struck in a warm corner of the greenhouse now, but with the assistance of the heat of a cucumber or melon frame they will strike quicker, and a fortnight or three weeks be gained thereby.

As it is a matter of sheer impossibility to obtain good flowering specimens by autumn, if the plants are brought out of doors and placed under the shelter of hedges, walls, or alongside of walks, etc., etc., without the slightest protection afforded them against worms, I am very particular upon this point, and have a bed of coal-ashes—not less than a foot in thickness—made up out in the open for standing the pots upon.

Supposing the plants to have been brought out of doors about the middle of June, stop the young shoots the first week in July, and shift into 48's or 32's a fortnight afterward. Return them to the bed of ashes after they are repotted, and stand them far enough apart to allow the young growth to develop itself in a natural manner.

In the early part of September the stock should be brought into the greenhouse, be placed close to the glass, and have an abundance of air. Here it will be necessary for me to say that it will be no use to place the plants in lofty or dark houses, especially such as have the roof covered with vines; they will not flower satisfactorily in houses of this sort. A heated pit where they can be kept near the glass is a capital place for them during the winter months. Ventilate the greenhouse freely when the plants are first brought indoors in September, to lessen the change as much as possible. In a fortnight afterwards they will begin to feel at home, and, as the weather will be getting colder, less air will be necessary. Air-giving must at all times be regulated by the state of the weather outside. In dull damp weather use a little fire-heat to admit of the ventilators being opened for a short time during the early part of the day, rather than keep them close for fear of the house getting too cold. It is an important matter not to deprive the plants of a breath of fresh air for the sake of a few shovelfuls of firing, when it can be admitted without injury.

Early-flowering Pelargoniums, managed as here advised, will flower freely from early in March until the following May, or longer if required. They are, however, not required after the middle of the last-mentioned month for conservatory decoration, as varieties with more highly-finished flowers will be coming freely into bloom. About the middle of May place the plants in a dry airy house, where they will receive just sufficient protection from frost. Early in June place them out of doors on a bed of coal-ashes to ripen the wood, and immediately that is accomplished cut the shoots back to three or four buds each, in the same manner as other varieties. Let them remain on the bed of ashes until the young shoots are about half an inch

July.

in length, and then shake out and repot after the roots have been pruned. They should be put at once in six or eight inch pots, according to their size. Over-potting must be guarded against; but by putting them in the above-mentioned sizes at once, no further shift will be required until next year, and much labour saved.

When they are potted, they should be placed in a cold frame, and have the freest ventilation possible. The lights ought only to be put on in wet weather, and then they should be tilted back and front, the object being merely to protect the plants from becoming too wet at the roots. No stopping will be required after the first shoots have had the points nipped off, as these varieties have a very compact branching habit, and bushy well-shaped specimens can be had without excessive pinching and stopping. In September they must go to the greenhouse, and from that time receive the attention advised for the young stock the previous season.

I have not as yet said anything about watering and soil. The first can be dismissed with a few words, there being no material difference between its application to this and the summer-flowering varieties, excepting that they will require rather more than the others during the winter, as they will then be in full growth, whilst the others will be nearly at rest. We use good turfy loam that has been lying in a heap for at least twelve months; a little sand is added to make it feel gritty, and a small proportion of well-rotted manure to insure a vigorous growth. The plants must be potted firm at all times; and if they show signs of exhaustion towards March and April, give a little weak liquid manure. This must be used sparingly, as too much is worse than none at all. So long as they continue growing and flowering, no liquid manure will be needed.

The undermentioned selection comprises the best and most distinct varieties for early flowering, and fairly represents the different shades of colour:—*Dr. Andre*, *Empress Eugénie*, *Fair Rosamond*, *Gauntlet*, *James Odier*, *Kingston Beauty*, *Marksman*, *Magnet*, *Mons. Boucharlet*, *Prince Charlie*, *Prince of Pelargoniums*, *William Bull*.

## NEW SHOW PELARGONIUMS.

BY JOHN WALSH.



ALTHOUGH these showy and most beautiful flowers are not so popular as they were a few years since, the work of improvement is steadily going on, for those veteran raisers, Messrs. Foster and Hoyle, apparently devote as much time and attention to raising seedlings as when show pelargoniums were at the height of their popularity. This year I observe Mr. Charles Turner, of Slough, has no less than fourteen varieties, selected from the seed-beds of the abovementioned raisers. They are all more or less good, and were exhibited at the metropolitan shows several times during the early part of the summer of last year. The following descriptive notes will, perhaps, be of



service to those amateurs who add the new varieties to their stock as they are introduced :—

*Achievement* (Foster), a pleasing large light variety of great merit, lilac rose lower petals, maroon spot on top petals, large white centre, fine form.

*Brigand* (Foster), clear cherry pink, with maroon spot on the top petals, shaded to the margin with orange pink, clear white eye, fine.

*Brutus* (Hoyle), deep rich crimson, with black spots on the top petals, narrow crimson margin, white centre.

*Cæsar* (Foster), a rich crimson variety, fine bright lower petals, painted, top petals dark maroon, narrow fiery crimson edge.

*Counsellor* (Foster), deep rose pink, small spot on the top petals, white eye, large, fine shape.

*Imperator* (Hoyle), a rich dark flower of fine form and substance, deep crimson lower petals, black top petals, narrow crimson edge.

*Kingcraft* (Foster), dark maroon top petals, richly painted lower white centre, very rich and novel.

*Pompey* (Foster), a very large flower, of rich colours, and fine form; orange lower petals, maroon top petals, with orange margin, large white eye; a grand variety.

*Prelate* (Foster), lower petals dark purple maroon, black top petals, narrow purple margin, white eye, fine substance.

*Prime Minister* (Foster), crimson lower petals, maroon top petals, shaded lilac margin, clear white eye.

*Rosicrucian* (Hoyle), new shade of colour, rosy purple, maroon spot on top petals, shaded with purple, fine form.

*Royal Bride* (Foster), cherry, medium spot on top petals, shaded with orange, clear white eye, fine form, and new colour.

*Sunset* (Hoyle), bright crimson scarlet, dark spot on top petals, shaded with rosy scarlet, free.

*Zephyr* (Hoyle), a fine deep-coloured variety, painted crimson lower petals, dark maroon top petals, with a wide edge of bright crimson, fine form and substance.

The varieties to be distributed next year appear to be equally promising, and quite distinct from those already in commerce. I recently had an opportunity of seeing a large collection of seedlings which have been taken from the seed beds of the abovementioned raisers, and are now in the hands of Mr. C. Turner, and made notes of a few of the very best, the names and descriptions of which are as follows :—

*Blue Bell*, lower petals rose-lilac, top petals blackish maroon, with narrow rose margin; throat pure white; a lovely flower of superb form.

*Countess*, lower petals clear salmon, top petals dark with broad fiery margin; fine and showy; grand for exhibition and decorative purposes generally.

*Druid*, lower petals clear rose-pink; top petals deep maroon with rose margin; very smooth and distinct; highly finished and rich in colour.

*Duchess*, lower petals deep scarlet, with dark shading and small July.

blotch, top petals blackish maroon ; throat pure white, very brilliant in colour.

*Highland Lassie*, lower petals salmon-red, top petals fiery crimson, small black blotch ; fine form and smooth ; distinct and pleasing.

*Prince of Wales*, lower petals deep rose, top petals crimson-scarlet with small dark blotch ; throat pure white, large, of fine form and very showy.

*Robin Hood*, lower petals rose-scarlet, top petals dark ; very large and of fine form, profuse, flowery.

*Ruth*, lower petals deep glowing carmine-pink, top petals fiery carmine approaching to scarlet, with small blotch ; large and showy and of good form ; very rich in colour, and beautiful in appearance.

*Scottish Chieftain*, lower petals deep scarlet with dark lines, top petals dark maroon ; distinct and good ; a fine dark-flowered variety of a distinct type.

## THE JAPANESE PRIMROSE, AND HOW TO GROW IT.

BY HENRY CANNELL, F.R.H.S.

The Nursery, Station Road, Woolwich.



AMONGST the many fine hardy plants we have of late years received from Japan, none deserve the attention of amateur gardeners more than the beautiful Japanese Primrose, *Primula Japonica*, which was distributed in the course of trade last year. To exaggerate the beauty of the flowers is impossible, and the attractive character of a large, well-flowered specimen is such as to justify its being grown rather extensively in the gardens of all who take an interest in floricultural pursuits. The foliage is large and ample, and the flowers, which are of the richest possible hues, are produced in whorls, several on each stem, thus presenting a beautiful appearance for a considerable period, because as soon as one whorl of flowers fades another expands and takes its place as it were. Added to its other good qualities, is that of perfect true hardiness, which is a matter of no small importance to those who have but little or no glass. The colour of the flowers varies from the richest crimson and purplish magenta to the purest white. In a large number of plants from the first importation, we have had flowers deep crimson, rose, lilac, and delicate pink, with darker coloured centres, like that of the finest phlox, and others beautifully striped, and also pure white. There appears to be hardly any limits to the number of varieties, and as the plants raised from English saved seed come into bloom we shall probably have many colours altogether new amongst them. It is very satisfactory to find that they seed very freely. On the majority of our plants we have as many pods of seed as we had flowers, and I hope to harvest a fine lot by the time it has attained maturity.

Perhaps the most suitable structure in which to grow the Japanese primrose is a cold frame, as the flowers there remain in good condition over a longer period, and the foliage retains its fresh appearance throughout the season. There has not been sufficient time to thoroughly test it in the open border, but it has been tested sufficiently to show that it is perfectly hardy. So far as my experience has gone, it appears that it will be most valuable for planting in shady positions, such as amongst ferns, where they will have a good depth of soil, and be screened from the sun without being overhung with trees. In this respect, they do not differ materially from other primulas, for none of the family belonging to the same type do so well fully exposed to brilliant sunshine as in a shady position.

When grown in pots in cold frames, which is the system of culture that I shall recommend for the present, the plants should be put in pots moderately large, and a generous compost employed. The size of the pots must be regulated by the size of each individual specimen, but as a rule, those six and eight inches in diameter will be found the most useful, as a specimen of considerable dimensions may be successfully cultivated in the last-mentioned size. The preparation of the compost can be disposed of in a few words, for they grow very freely in a good turfy loam, and decayed leaf-mould and manure, at the rate of about four parts of the former to one part only of the leaf-mould and manure. Let the soil be used in a moderately lumpy condition, to enable the roots to run freely. The pots also must be well drained, because, during the growing season moderately liberal supplies of water are necessary, and if the drainage is not good, a danger exists of the soil becoming sour, by reason of the stagnant water in it.

With respect to raising a stock of seedlings, I would strongly impress upon the attention of my readers, the importance of sowing the seed as soon after it is gathered as possible. Consequently, those who intend trying their hand at raising seedlings, should order the seed at once from those who hold a stock of plants, and give directions for it to be sent immediately it is ripe. It should be sown as soon as it comes to hand, in seed-pans filled with a light friable compost, containing a considerable proportion of leaf-mould. Cover the seed lightly, place the seed-pans in a cold frame, keep the soil just moist, and prick off the seedlings into other pans when large enough. The seed has been known to lay dormant in the soil for a considerable period, therefore there must be no hurry in emptying the seed-pans if the young plants do not make their appearance so soon as expected. I, however, do not think that English saved seed, provided it is sown soon after it is gathered, will remain dormant so long as some of the imported seed has done, and by attending to the directions now given, the cultivators may hope to raise a stock in a comparatively short space of time, of one of the grandest of our hardy flowers.

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## A NEW AND EASY WAY OF PROPAGATING BEDDING LOBELIAS.



MOST people propagate their bedding Lobelias by cuttings taken from the old plants, or by seed sown in February or March, but you can never be sure of its coming up true from seed. I have always raised it myself every season in either of the above-mentioned ways until this year, and I shall never do so again, as from the system that I tried this season, I find much less trouble. If you raise it by seed or propagate it by cuttings, it takes up so much room in the house, as of course they must be pricked off. The way I raised a stock this season was as follows:—In the end of last season, when the bedding plants were being taken up, I took up a large number of plants, and potted them in 48 sized pots in a mixture of leaf-mould, sand, and a little rotten turf. Then the heads were cut off the plants so as to make them break afresh; they were then put into the house with the other bedding stuff, where they remained all the winter. In the spring they threw out hundreds of shoots, which, when they were grown a little, emitted roots from the joints, which struck down into the soil in the pot. Then when the bedding-out time came, all I had to do was to separate with a sharp knife or scissors each branch from the old plant, and there were all my young plants ready rooted without any of the labour usually bestowed upon raising seedlings or striking cuttings. I am sure anyone who will try this plan, will never have recourse to the old style of propagating it again. For effect and giving brightness of colour to our gardens, there is no other dwarf-growing, blue-flowering plant equal to it, and by treating it in the way I have done this season, it takes up comparatively little room in the plant-house. A. H.

*Upper Norwood.*

## THE MULTIPLICATION OF ROSES FOR THE MILLION.



ROSE propagation is a very interesting theme, because of the universal popularity of what has been justly designated the Queen of Flowers, and as we have recently received several inquiries in reference to it, we return once more to the subject of rose-culture, and shall confine ourselves upon this occasion to their multiplication by buds and cuttings, which may be most successfully done during the month of July. We have, as most of our readers are aware, strongly advocated for some years past the cultivation of roses on their own roots, and although we met with much opposition from the trade when it was at first proposed, there is not at the present moment a nursery in the country in which the rose is cultivated to any extent that does not contain a stock of the best varieties on their own roots, thus proving in the most unmistakable manner the soundness



of our teaching upon this question. *Apropos* of multiplying roses by means of buds and cuttings, it is worthy of mention that in one of the gardening papers we have recently been treated with what has been designated the "Rose Secret." It was first of all said that by a certain system a very large percentage of cuttings may be struck, but when the readers inquired, as they naturally did, what the system was, they were met by the assertion of the editor that he was not at liberty to divulge it. Supposing there to be a "secret" in the matter, nothing could be more objectionable than to say anything about it unless it was intended to divulge it. Certainly no useful purpose could be served by so doing. But we are prepared to assert that there is no secret whatever in connection with the multiplication of roses. Although the cuttings cannot be struck so readily as those of the zonal pelargoniums, there is no reason why by strict attention to their requirements, nine out of ten cuttings may not be struck and made into plants. We have done it over and over again since we were first convinced of the great importance of growing roses on their own roots, and as far back as 1860 we explained in the FLORAL WORLD the *modus operandi*, and in the "Rose Book" we went into the subject more fully, and, by the aid of illustrations, presented the matter in the clearest manner possible. These woodcuts we borrow from the "Rose Book," as there are, doubtless, many of our readers, notwithstanding the immense sale it has had from the first, who do not possess it. But for the amateur who has not had much practice in propagating, the most explicit advice will be needful. Let us begin, then, at the beginning. *Imprimis*, a good frame with light to fit, placed over a half-spent hotbed; or, wanting the hotbed, on a bed of soil raised above the level, so as to gain as much sun-heat as possible. A lot of seed-pans, and bell-glasses to fit them; or, better still, a lot of the "Plant Covers" or "Propagating Boxes" manufactured by Mr. B. Looker, Norbiton Potteries, Kingston-on-Thames, which are the best things of the kind for this sort of work, and, moreover, remarkably cheap. You may, if you cannot afford these accessories, do without the glasses or Looker's appliances; in which case, you must use extra care to keep the frame shaded for some time, as any accident, such as too much sun, or too much air, or too dry a condition of the soil, will make an end of the whole proceeding, whereas, with the aids here mentioned, there is less risk of an accident. The bed, then, we suppose is ready.

The next want is rose trees to cut at; and here is the first nice point to be attended to. The best buds for the purpose are those cut from wood of this season, in a plump, half-ripe state; the buds all to be visible, and in the condition which rose-growers well understand when I say that *pushing* buds are better than *dormant* buds. In the axil of every leaf a bud exists. On old wood these buds are sometimes invisible, and will not push till the trees are pruned back next season. These are dormant buds. As autumn approaches, most of the buds on the upper parts of shoots of the season are invisible, and will not grow at all this season; they are, in fact, formed for next season's growth—and these also are dormant

buds. But if we take a strong shoot which towers up above the flowers, and examine it, we shall see that the buds on the shoot are visible, nay plump; and we may guess, if fond of guessing, that when the July rains come many of those buds will push and form short side-branches with flowers on them. These, then, are pushing buds, and such will best serve our purpose, though dormant buds



FIG. 1.—ROSE CUTTING.  
(Leaves to be removed at *a* and *b*.)

may be used if none others are to be had, because the treatment will make them push when the proper time comes.

Take the knife and boldly cut away one of the strongest shoots of this year—not to the base, but within a fourth part of its length

from the base. You may go quite to the base if you like, but we are thinking of providing you with cuttings without sacrificing the autumn bloom of the roses, and if you leave a fourth part of every shoot you cut, the buds on the part left will provide you with flowers shortly, and the process of obtaining the cuttings will be equivalent merely to a summer pruning. The very soft wood at the top of the shoot is not of much value to a beginner—cut it away, say three joints down. Now cut all the rest to lengths of four joints each, as shown in the engraving, Fig. 1. With the knife remove the lowest pair of leaves by cutting them through as close to the stem as possible without hurting the bud at the base as shown at *a* and *b*. You have now the best-sized cuttings for a



FIG. 2.—ROSE SHOOT.  
(Showing the way to take the buds.)

beginner. Prepare as many as you like, plant them all in pans filled with sandy peat or leaf-mould, with an inch of sand on the top, and they will every one root if you manage them properly. Proper management consists in planting them so deep that the second leaf from the top just escapes being covered with soil—in other words, plant them to the second joint, and no deeper. They must be kept shaded and moist—never wet, never dry; aired daily, but with caution—a mere peep at them daily for the first week will secure them air enough; after that time, the glasses may be taken off and wiped dry daily, and replaced after a few minutes.

July.

When you have had a little practice in this way, you may make the cuttings with two joints only, and in this case you may do without a joint in the soil. Pass the knife clean through between the second and third joint, plant as before to the second joint, handle them carefully, and they will root from the "internodes"—that is, from the space between the joints to which they have been cut in preparing them.

The next practice will be to make one leaf and one joint suffice, with an inch of wood attached, and this is easily done, and ought to be done to prepare the practitioner for a skilful handling of eyes, which make better plants than cuttings, and, in fact, the best plants that can be had; they have the vigour of seedlings, with the advantage of being true to the several kinds from which the buds are taken.

Once more, cut from the tree a nice stout rod of this year. If the buds are pushing, good; but if pushed, they will not do. In other words, if you see the buds, and they look as if they meant to grow this season, you are safe; if they have already begun to grow, and have perhaps pushed to the extent of a sixteenth of an inch, reject them, for you will probably fail in all your efforts to persuade them to make roots. Having your nice plump,

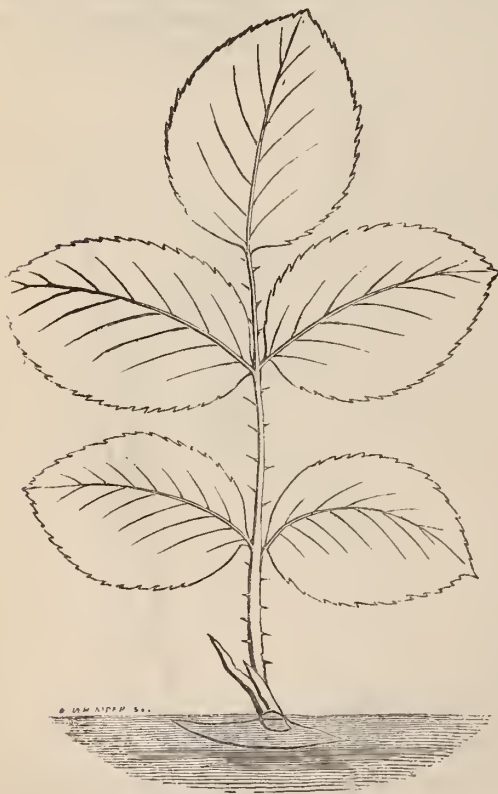


FIG. 3.—ROSE BUD.

(As inserted in the soil.)

green rod, half ripe, yet in a condition to peel easily—in fact, just such a rod as you would cut if you were intending to bud briars—you are in a fair way to proceed safely. Instead of preparing cuttings, take out each bud with its leaf by such a cut as is represented in Fig. 2. This, in fact, is the same as if cut for budding briars, but the leaf is not to be removed, and the wood is not to be removed, so you escape all the "niggling" that is the stumbling-



block of nine out of every ten amateur rosarians. Have your pans and glasses ready, the pans with a layer of peat or leaf-mould at the bottom, and at least an inch and a half of silver-sand at top. Plant the bud with the leaf upright, as shown in Fig 3, keep it moist and shaded, and in due time it will throw out roots from the edges of the bark all round, and then the leaf will fall, and the bud will start and grow.

Having succeeded in preparing the buds properly, perhaps the principal difficulty will be to get them nicely dibbled in, so as to stand firm with all their leaves up above the soil. We always take the bud in the left hand, press a hole in the sand with a bit of stick held in the right hand, place the bud in the hole so deep as just to cover the point of the bud with the sand, and then press it firmly with the thumb placed on one side of it. They may be put very close together in the pans, and if the leaves are very large and when wetted fall over, clip off the top leaflet; the two leaflets then left will suffice to keep the bark healthy till it emits roots for its own keeping.

When a pan is filled, sprinkle the leaves; never mind wetting the sand—if that is just damp it is sufficient; put on the bell-glasses; put the pans into the frame; draw down the light, and take satisfaction to yourself that you have done something.

It is about thirty-five years since we were taught this plan of propagating roses, and remember as if it was but yesterday being told, "All you've got to do, is to keep the leaves alive; if the buds are dry it don't matter." And so we always found it. There will be hundreds of persons at work on eyes this season through the appearance of these remarks, and there will be thousands of eyes lost through too much water. Remember then, not our lesson, but the lesson that was given to us, "Keep the leaves alive; if the buds are dry it don't matter." What is the use of water to a chip of wood that has no roots? Of no use at all; it must be kept plump, but a very little damp in the sand suffices for that. On the other hand, to keep the sap moving, and to preserve the vitality of what is now dependent on absorption only, the leaves must be always moist, and that is to be accomplished by frequent sprinkling, and by keeping them rather close shut up. But herein is another danger. If not daily aired—a few minutes suffice for the first fortnight—the leaves will decay before the bark has thrown out roots. If this happens, the eyes are lost. But if kept always moist, always warm and close, and yet never saturated, the leaves will be green till roots begin to grow, and at the first start of the bud the leaf will turn yellow and fall, and up will rise the tender shoot to tell you that your work was ably done. Of course, the process of potting off must then commence, and the little plants have thereafter all the care needful to make big ones of them. Such matters will, perhaps, not need to be treated of in detail; certainly, we shall not enter into detail on that part of the subject, because of the space it would necessarily occupy.

But touching the making of eyes, we hope it will be understood that young wood and plump eyes are not imperatively needful. Old

wood and dormant eyes will make plants, but the process is slower, and the proportion of losses is sure to be greater than with plump buds cut from shoots of this season, on which at present none of the buds have begun to lengthen out in actual growth. Those who are used to budding only need select good budding wood—such shoots, in fact, as they would prefer to take buds from, for on these the leaves are fully matured, and capable of sustaining life in the bark and bud for a period of three or four weeks while the bark is forming a callus. Young immature leaves, and the buds at their base, are of no use for the purpose, and it will be a folly to use them, because they are sure to perish. If in the dibbling of the buds into the pans it is found difficult to make the leaves stand up as in the figure, take some fine twigs from an old birch-broom, and stick in to support the leaves, or put a few light stakes round the sides of the pans, and draw a few lengths of twine across, against which the leaves may rest. But all such small difficulties will soon vanish; the few manipulations needed are so simple, that any one with a will is sure soon to discover the way.

As to the subject of heat, a cold frame will answer perfectly at this time of year if placed on an elevated bed in the full sun, and kept shaded from nine to six daily till the eyes are rooted. But a very gentle bottom-heat is preferable, and hence a nearly spent hot-bed answers admirably. If a bed has to be made up for the purpose, let it be with rotten manure, and in fact the turning over and making up again of a bed which has been in use till now for cucumbers will answer admirably, for when rotted manure is forked over and made up into a bed, there is always a gentle fermentation and a moderate heat which lasts a considerable time, and for this purpose will be sufficient. We can imagine an unpretending amateur planting separate eyes in thumb-pots, and placing a lot of such under a common hand-light or one of Looker's Plant-covers on the common soil, in a rather shady place, and by covering the glass with canvas or mat all day, and taking it off at night, giving at the same time all needful attention to airing and sprinkling, getting his two or three dozen nice plants on their own roots, and being well repaid for his little trouble. We never did deal with eyes in such an offhand way, but we have rooted thousands of three-joint cuttings in separate thumb-pots under hand-lights on a border, and could get a comfortable living by that practice alone if need be, for every rose is worth so much, and the demand is fully equal to all the existing means of supply.

It may perhaps be both interesting and useful to many of our readers, to know that we recommend the propagation of roses by buds and cuttings, because dwarf roses are more effective when employed in flower garden decoration than those grown as standards on the brier; and when on their own roots are longer lived than when on either the brier or Manetti. The latter stock has some advantages, but it has many objectionable qualities. It should be understood that the Manetti is a mere Italian brier, which does not make strong stems like our English briars, but throws up from the roots continually, and so renews itself as a bush. It is used as a

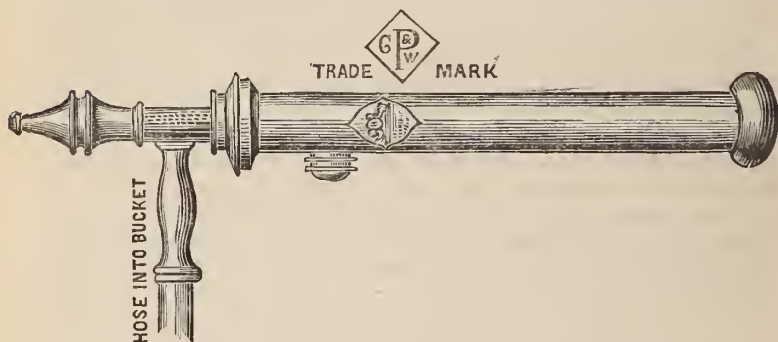
stock, and as a stock it regulates its movements as much as possible by the almanac of its native land, and begins to grow always before the season here is sufficiently advanced for it. When used for pot-roses its excitability is sometimes an advantage, because if we want early growth and early bloom the stock is in the right humour to co-operate with our measures of stimulating vegetable activity. But out-of-doors this excitability is a disadvantage, and goes a great way to explain how it is there are so many losses among Manetti roses after a hard winter. The fine days of January—if there are any—set the Manettis growing, the frosts of February kill all the soft growth, and the winds of March suck the sap out of the harder wood lower down; and before the genial moisture and warmth of April have begun to revive the face of nature, all of the rose is dead but the mere roots, which in a case of this sort die last, because most protected. But the roots revive and throw up suckers, and if the rosarian is a rosarian he soon discovers what is the matter, roots them out, and uses them as stocks to work again, or without much ado deposits them in the muck-pit. But the rosarian who is *not* a rosarian takes a delight in seeing the nice bluish leafage of the shoots that come from the roots of his departed roses, and waits for bloom—he *may* wait; for he will never have any. Taking a purely horticultural view of the matter, it illustrates the value of own-root plants; for in the first place they are not so apt to rush into growth, and so expose themselves to the northern blast; and in the second place, if the blast lays them low, there is a power left in the roots to make them rise again, fresher and stronger than ever, true to the characters they bore, and worthy of such a glorious resuscitation. The Arabs are said to be the authors of the fable of the phoenix. In the great flat lands of Mesopotamia, where roses grow in thousands, there are severe frosts at times that do much havoc, but no one can trace their effects when spring returns, for lo! the plants that were killed to the ground spring up again, and testify that the breasts of mother Earth are not yet dry, nor the current of her blood checked in its energetic flowing. Job, who lived in Idumea, where the fable of the phoenix had in ancient days its place amongst a thousand similar fancies wrought out of the truest philosophy, had himself speculated on this renewing power of the root as affording a lesson for the meditative mind. He says there is hope of a tree, if it be cut down, that it will sprout again, and through the scent of waters it will bud. In like manner, every rose will renew itself from the roots, if the roots are its own; and there is hope of it, therefore, if it be cut down.

S. H.

## THE JET D'EAU GARDEN ENGINE.



HIS new garden engine has been used in the experimental garden at Stoke Newington for several months past, and we are so well satisfied, that we avail ourselves of the present opportunity for directing the attention of our readers to it. It may be described as a self-feeding syringe, for it is used in the hands (without the aid of feet) in the same way as a common syringe, but has not to be dipped and refilled for every stroke, as the left handle is connected with a length of hose, the end of which is placed in a vessel of water. We are satisfied with



its principle, which insures to the operator a great saving of time and strength, and with its appearance and construction, for it is particularly well made and is as handsome as it is useful. It may be used for any length of time without subjecting the operator to so much as a stray splash or drop of water. It will throw water downwards as well as upwards, and in this respect differs from all other engines of its kind, which require the jet to be turned upwards.

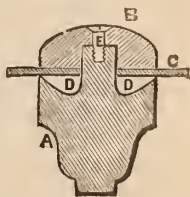
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**KILLING TREE STUMPS.**—The following remarks from the pen of Mr. T. Baines, in a recent number of the *Garden*, are deserving the attention of our readers, as bearing upon a most important point of garden practice:—"Your correspondent 'W. T.,' in planting young trees on ground where, he says, the roots of the existing trees cannot be got out, has committed a mistake that will, in all probability, prove fatal to those he has planted. I never knew a single instance where a new plantation was made on ground that had been previously occupied with trees that ever succeeded, unless the whole of the ground was trenched over as deeply as the roots of the trees removed had gone, and every root, as thick as a person's finger, got out—an operation that costs as much as the ground is usually worth. The result is generally this: the young trees for a time grow, but in two or three years they begin to look sickly, and die off. On examining the roots, they are found to be destroyed by a fungus, which has done nature's work in assisting the decomposition of the dead roots, and, for want of a further supply of food, attacks the living ones, which, in turn, succumb to its encroachments."



## NEW SYSTEM OF GLAZING WITHOUT PUTTY.

**W**E have recently had an opportunity of examining a new system of glazing without putty, the invention of Messrs. Rendle and Burrows, 18, Castle Street East, Oxford Street, W. The sash-bars are in two parts, as portrayed in the accompanying illustration, which, with a very few words, will suffice to show the principles of the invention. The lower part is made in much the same manner as the ordinary sash-bar, but with two grooves for receiving and carrying off the condensed moisture. The glass is held securely in its place with a wooden cap, which fits close down upon it, and is secured to the sash-bar with screws, as here shown. The cap is made of the same length as the glass, so that if a square of glass is accidentally broken it can be replaced instantly by the removal of the caps on each side. It appears to be a most meritorious invention; but, of course, its true value can only be accurately ascertained by experience in its use. It is certainly worth the attention of those who contemplate erecting glass structures, either for plant or fruit growing. The following is a description of the sketch:—A, the sash-bar; B, wood capping cut in lengths of the glass; C, the glass; D, grooves to carry off drip; E, screw to fasten capping to bar.



## GARDEN GUIDE FOR JULY.

**KITCHEN GARDEN.**—Commence at once a general clearance of plots that have borne peas, beans, etc., etc., to burn all the dry haulm and weedy stubble, and fork over and put on manure if necessary; all winter crops will do better in ground well dug, even if not manured, than with a mere scratching of the surface. Where there is much demand for potting composts, the kitchen garden will supply useful material for the muck-pit, which is a more economical method in the long run than the burning of rubbish, though the latter is a clean and quick way to get rid of it, and the ashes are useful. Save all the soot that can be got to make a puddle for dipping the roots of broccolis, cabbages, etc., when planting out from the seed-bed, and store away at once all pea-sticks worth keeping, to preserve tidiness and prevent waste. Cucumbers require an abundance of water, both over the foliage and at the root. Put a few cans of water in the pit or in a warm house early in the day, to have it warm and soft for use in the afternoon, then use it and shut up, and if the beds are extra warm give a little air an hour afterwards. Any sowings of turnips made now should be managed so as to outwit the fly if possible. As the fly only attacks the plant in the seed-leaf, it is not so formidable an enemy as it is sometimes represented. Therefore dust the bed with soot when

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the young plants are moist with dew. Winter greens to be planted out at every opportunity. It is most important to get out good growths of Brussels sprouts as early as possible. Sow Early York, Battersea, Shilling's Queen, and Rosewort cabbage, Early Horn carrot, green curled endive, cabbage and cos lettuce, turnips, and prickly spinach. Make ready the ground for winter spinach, the time for sowing being near at hand.

**FRUIT GARDEN.**—Bush fruits require attention. Thin the growth, tie and nail the bushes on fences and wires, and give the trees their final shape for fruiting next year. Thin out the new canes of raspberry stools, so as to leave only four or five of the strongest to each. As soon as the fruit is off, cut the old canes to the ground, and tie out the new ones that the wood may get hard and ripe. If manure is plentiful, mulch the raspberries at once, but do not disturb the surface more than may be necessary to remove weeds. Orchard-house trees require very little attention now beyond abundant watering, and the use of strong liquid manure. No more pinching to be done. Shoots badly placed may be removed now without fear of causing the buds at the base to break. Vines that have ripened their fruit must be carefully brought into a resting condition by gradually withholding water, and exposing the wood to the weather night and day except during rain. Crops ripening to have the help of fire-heat in case of a prolonged term of cloudy or cold weather, as any delay in ripening will bring on mildew. Where the grapes are just stoning, attention should be paid for the last time to thinning and tying in, but do not cut away every apparently superfluous shoot; very often a few random growths help to sustain the vigour of a vine, and are in fact the signs of vigour; but of course these should not overlap the old wood, or shade the leaves that have bunches to take care of. Where ripe grapes are to hang, keep the house dry; and to prevent red spider, paint some tiles with sulphur vivum, and lay about in the full sun. Plant out the first lot of well-rooted strawberry runners in ground well manured, and shade for a week and keep well watered; these will at once form good crowns, and bear well next season. Lay in more runners, always removing them as soon as rooted. Fruit-trees that are still making young wood must not be stopped, or it will cause them to throw out useless side-shoots.

**FLOWER GARDEN.**—In the flower garden, an immense collection of the finest herbaceous plants may be obtained at almost no expense at all by sowing while the ground is moist with rain. Considering the beauty of many of these things, and the difficulty frequently experienced in obtaining plants in spring, it is a wonder that at this season so few should take the little trouble required to produce them in myriads. Another lot of annuals may be sown early in the month, to keep up the gaiety of the borders. Sown now, they will flower beautifully during September and October. This is the best time of year to sow *Nemophilas* in shady places; the bloom is much finer and more lasting than of those sown in the usual way in spring. Bud roses during cool moist weather. *Chrysanthemums* to be stopped for the last time about the middle of

the month; keep the plants clean, never neglect the training, give plenty of water, and shade from the mid-day sun those intended for specimens. Propagate in the open ground geraniums, herbaceous plants, and hardy shrubs from cuttings of this season's growth. Rhododendrons and Andromedas may now be layered for increase; it is the simplest and surest method of propagation, though slow; nevertheless they are always better on their own roots than grafted, and though many kinds sow themselves in plenty, and produce thickets of seedlings, if allowed, there is no dependence to be placed on them for character when at last they come into bloom. Old beds of American plants may be benefited now by top-dressings of cow-dung quite rotten. Recently-formed beds should not have it, nevertheless, a mulching of some kind, especially amongst *Kalmias*, will be beneficial. Where moss is plentiful, there is nothing better to strew three or four inches thick over the whole of the soil; it soon sinks to a close peaty layer, and preserves a moist condition of the roots.

**GREENHOUSE AND STOVE.**—Soft-wooded plants, such as cinerarias, primulas, heliotropes, herbaceous calceolarias, etc., must have frequent attention now. Have seedlings pricked out into pans, or singly in thumb-pots; shift cuttings and rooted suckers; sow calceolaria and cineraria to succeed the first lot; a moist, cool, shady place will bring them on, and, as they gain substance they must have more light and air. Use for all these plants a light rich compost, in a sweet and friable condition. Hard-wooded plants mostly require shifting, if only to remove a little of the worn-out stuff on the outside of the balls, and repot them in the same pots. The soil should be lumpy, and with plenty of fibre in it. Take care the drainage is safe; a strong oyster-shell over the hole is a safe way to insure an outlet for water. After shifting, sprinkle frequently, and give only a little water to the roots. Conservatory and stove climbers require much attention now. A moderate freedom of growth must be allowed, but shoots that interlace are sure to be weakened, so generally an occasional thinning, regulating, and stopping are needful now. Cinerarias are generally very mixed as to quality, owing to the too frequent keeping of seedlings that have pleased by their colour, but had no other good quality. Seeing how many really beautiful varieties are now obtainable, it is a positive waste of time and glass room to propagate any seedlings that have not some decidedly good qualities. We name this now, because many gardeners who grow these plants largely for decoration are at this time of year tempted to propagate from whatever old plants they possess, with too little regard for their quality, whereas if a few of the best new ones, or a complete set have to be purchased, the cost is little, and quality is of the first importance in a flower which every one can criticise. Every second-rate seedling should be thrown on the muck-heap as soon as the bloom is over, so as to reduce the work of propagating to a few of the very best. Those to be kept should either be moulded up in the pots or be planted out on a shady border in rich sandy soil, an inch below the level, to induce them to break freely for increase of the stock.

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## NEW PLANTS.



**BEGONIA INTERMEDIA** (*Floral Mag.*, 5).—A splendid hybrid raised from *B. boliviensis* and *B. Veitchi*. Respecting it Mr. Dombrain says: "We are informed by Messrs. Veitch and Sons, in whose establishment this fine variety has been raised, that it is a cross between *B. boliviensis* and *B. Veitchi*; the flowers are of the same colour as the latter, and of intermediate form. The habit is somewhat in the way of *B. boliviensis*, but still retaining a great deal of *Veitchi*. It is very robust, sturdy, and free-growing, and flowers very freely indeed; as it has so much of the *Veitchi* blood in it, it may be reckoned amongst the free-flowering greenhouse Begonias. With regard to culture, there is very little difficulty; it requires to be grown in a light rich soil, and to be carefully supplied with water; when started, it may afterwards be more freely supplied. As the shoots lengthen, they should be neatly tied to small stakes, for being succulent, they are apt to be broken off. Few greenhouse plants are more effective than a well-grown specimen of any of these greenhouse Begonias, and we can well imagine that a plant of this fine variety will make a more brilliant display than either of those from which it has originated."

**ÆCHMEA MARIÆ REGINÆ** (*Floral Mag.*, 8).—A sumptuous stove plant, with rosy scarlet bracts and bluish-tinted flowers. Mr. Dombrain says: "Amongst the many beautiful stove plants which have been introduced during the past season, that which we now figure lays claim to being one of the most remarkable; and this in a year in which new stove plants have certainly been more numerous than during many past seasons. The *Æchmeads* being Bromeliads, like most of that family, from the character of their foliage, and from the fact that most of their beauty depends on the colouring of their bracts, they maintain their brilliancy for a very long period, often remaining some months in perfection, a fact which of course adds greatly to their value. *Æchmea Mariæ Reginæ* was introduced by Mr. Wendland, of Hanover, and is a plant of robust habit, with leaves of about eighteen inches in length, arranged vase-like; the flower-spike rises from the centre, about two feet and a-half in length, clothed with boat-shaped bracts four inches in length, of a rosy-pink colour: the flowers, tipped with blue and changing to salmon-colour with age, and arranged compactly on the upper part of the spike, materially add to the beauty of this grand plant; the bracts are very persistent, and retain their rich colouring for several months. It was exhibited by Mr. B. S. Williams, of the Victoria Nursery, Holloway, and received first-class certificates, both at the Royal Horticultural Society and at the Crystal Palace, a distinction which it well merits. Its cultivation, like that of many of the other Bromeliads, is not difficult; it requires to be grown in a small pot, with a good deal of water."

**PYRUS SPECTABILIS ROSEO-PLENA**.—A splendid variety of a well-known hardy tree, the flowers rosy pink, and resembling diminutive roses.

**CORYNOSTYLIS HYBANTHUS** (*Bot. Mag.*, 5960).—A stove shrub of climbing habit, with glossy foliage, and abundance of snow-white sweet-smelling flowers.

**MASDEVALLIA IGNEA** (*Bot. Mag.*, 5962).—A fine terrestrial orchid, with flowers of a dazzling scarlet, mixed with orange-scarlet.

**STAPELIA SORORIA** (*Bot. Mag.*, 5963).—An interesting old plant, with purple and yellow flowers. Dr. Hooker describes it as "one of the earliest-known species of the curious genus to which it belongs, introduced into England by Masson, a collector for Kew, though it nowhere appears in the first or second editions of the *Hortus Kewensis*. Masson, who first described it in 1796, states that it flowered in his garden at the Cape of Good Hope in 1792, and in the Royal Gardens, Kew, in 1797. The said Francis Masson was a gardener at Kew, and was, at the instigation of Sir Joseph Banks, sent to the Cape to collect live plants for the King (George III.); he left England in 1772, and remained in South Africa till 1775, when he returned on leave to England, and spent his vacation in publishing the beautiful drawings he had made of *Stapelias* in a small folio work, dedicated to the King, with figures and descriptions of forty-one species, all new to science (there having been but two previously published from that country), and collected in the Karroo country chiefly by himself. In 1786 he returned to the Cape, and spent ten



years more in collecting for Kew. Close upon ninety species of *Stapelia* are described in DeCaisne's monograph of the genus, in DeCandolle's *Prodromus*, published in 1844, since which time many more have been discovered, but few figured. In 1811, forty-four species were cultivated at Kew, where there are now about thirty. *S. sororia* varies much in robustness, size of flower, and in the number and extent of yellow ridges on the petals."

*AZALEA MOLLIS* (*Illustration Horticole*, 68).—A showy Brazilian species, with orange-red or cinnabar-coloured flowers.

*ENCHOLIRIUM CORALLINUM* (*Illustration Horticole*, 70).—A fine bromeliaceous plant, with superb leafage, stately spikes of flowers, the bracts of which are coloured deep rose-pink, and bright orange-yellow.

*TODEA BARBARA* (*Bot. Mag.*, 5954).—A well-known fern, usually catalogued as *T. africana*. The following interesting notice accompanies the figure:—"Amongst the striking objects in the Great Temperate House at Kew, none has of late attracted more notice than the gigantic specimen of *Todea barbara*, or, as it is there called (from its affinity to our British *Osmunda*), the Austrian Fern Royal, sent by Baron Von Mueller, from the Victorian Alps, in 1869. Huge specimens of this plant had previously been sent to Europe from Australia, and, after seeing four such exhibited at the St. Petersburg Horticultural Exhibition in 1869, I wrote to my friend the Baron, and begged him to procure for us the largest specimen he could, which, with his wonted promptitude and liberality, he did at once, so that before the end of that same year Kew was possessed of the finest specimen in Europe, transmitted moreover free of cost for transport or voyage. None of these St. Petersburg equalled that here figured in bulk or weight; and, owing to defective treatment, their foliage was so starved that they looked rather like grotesque vegetable monsters than the truly noble plants which they would have been had their natural wants been supplied. As with almost all other ferns, *Todea barbara* likes humidity and shade, and it is under these conditions that, at the bottom of the dark gorges of the Australian Alps, it attains its gigantic bulk and luxuriant crown of fronds growing out of steep banks, with its base often washed by a torrent. Stuck upright in a tub, as usually planted in our greenhouses, the roots which clothe the huge caudex soon dry, and the fronds are imperfectly developed; but when set upon a shallow vessel of water, propped up between stones in front, a mass of earth kept in place by cask-staves behind, and when stones, earth, and caudex are clothed with *Lycopodium*, it sends out fountains of fronds throughout the year. The specimen here figured arrived at Kew in the autumn of 1869, and weighed in its dry state, when taken out of the box of sawdust in which it was packed, exactly fifteen cwt.; it then had not a frond developed on it, now it has some thirty crowns, and in all just 160 fronds, averaging five feet in length. Large specimens have been sent to Europe by Baron von Mueller, of which one, presented by him to Mr. J. Booth, of Flottbeck, Hamburg, weighed one ton three cwt., its dimensions being five feet eight inches high, seven feet nine inches wide, and three feet three inches in its smaller diameter. The genus *Todea* takes the place of *Osmunda*, in the Southern hemisphere, and was united with it by R. Brown, as I think, with much reason. *T. barbara* is a native of Tasmania, S. and E. Australia, and South Africa, in which latter country, however, it does not, in so far as I know, attain the dimensions that it does in Australia. Linnæus named it *Acrostichum barbarum*, because of its African origin; but it is not a native of Barbary."—J. D. H.

## HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY, GREAT SUMMER EXHIBITION, JUNE 5 to 7.—The exhibition at South Kensington on the above dates was a decided success. All the classes were well filled, and in many of them the competition was very spirited, and the result was one of the best exhibitions held in London under the auspices of the Society for some years.

The plants were arranged in the large tent erected last year at the lower end of the garden, which is laid out in a natural manner, thus allowing full scope for the tasteful arrangement of the various productions staged in competition for the

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prizes. The tent, which is of a very large size, was well filled without being overcrowded, and, as there was an abundance of flowering plants, it presented a most brilliant appearance, and had palms and tree-ferns been better represented, the arrangements would have been such as to have left little to be desired. As it was, some of the blocks of colour appeared to require breaking up with plants of a noble habit of growth, such as those indicated above. Stove and Greenhouse Flowering and Ornamental-leaved Plants were contributed in considerable numbers, and, generally speaking, in good condition. Orchids were fairly represented, but Show and Fancy Pelargoniums were better than at any of the exhibitions held in the metropolis or in the provinces during the present season. Ferns, both Exotic and British, were strongly represented by the leading growers, and New Plants were exhibited in sufficient numbers to form a most interesting feature. The fruit was exhibited in a narrow tent away from that set apart for the plants, and, as it was somewhat plentifully contributed, formed a very interesting and attractive feature.

ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM EXHIBITION.—The provincial exhibition of this Society, which this year was held at Birmingham, was, perhaps, the most successful of its country shows. Horticultural produce of all kinds was contributed in enormous quantities, and, generally speaking, in the finest possible condition. One of the special features of the show was the exhibition of dinner-table decorations by gaslight, in competition for the very liberal prizes, amounting in the aggregate to £50, of which £25 was contributed by the proprietors of the *Gardeners' Magazine*. Another, most important feature was the display of horticultural implements, heating apparatus, etc., which were shown in sufficient numbers to occupy one and a-half acres of ground, had they been packed close together. But, arranged for the inspection of visitors, they occupied a much larger space.

ROYAL NATIONAL TULIP SOCIETY.—On the 25th ult., the annual exhibition of this Society, which is the only one of its kind possessing a national interest, was held in the gardens of the Manchester Botanical and Horticultural Society at Old Trafford, and was quite up to the average. The tulip is very sensible to climatic influences, and the incongeniality of the weather during the month of May exercised a very unfavourable influence upon the flowers, and undoubtedly prevented some of the growers putting in an appearance. Hence, it is satisfactory to us to be able to record the fact that the exhibition was not below the average. The Lancashire growers were, as usual, most strongly represented, but the flowers from the beds of growers resident in Middlesex, Cambridgeshire, Leicestershire, Warwickshire, Notts, Norfolk, and Derbyshire, as well as Scotland, were staged in considerable numbers and in splendid condition. The competition for the champion prize of a silver cup for £5 was very close between Mr. D. Barber, of Stanton-le-Dale, Derbyshire, and Mr. S. Barlow, Stakehill House, Chadderton, who were first and second respectively. Mr. Barlow presented, as was his wont, his flowers in fine condition, but they required another week to bring them to perfection. As illustrative of the extent of the show it may be mentioned that about 2,500 blooms were staged. The following varieties comprised the best flowers shown in their respective classes. *Bizarres*: Sir J. Paxton, Dr. Hardy, Ajax, Orion, George Haward, Demosthenes, Lord Raglan, Charles Brown, and Masterpiece. *Byblæmens*: Talisman, Duchess of Sutherland, Martin's 101, Adonis, Walker's Attraction, Bacchus, and Violet Amiable. *Roses*: Heroine, Aglaia, Rose Celestial, Industry, Triumph Royale, Mrs. Lea, Mrs. Barber, and Madame St. Arnaud. Some very good seedlings were exhibited in all the classes. In breeders, besides the old-established favourites, a very large number of most excellent seedlings were staged in all the classes, which proves in the most unmistakable manner a very great interest is still felt in this empress of flowers, and that the raising of seedlings is practised to a considerable extent by many cultivators, and from which we may look in years to come for many sterling varieties.

A NEW RACE OF PELARGONIUMS.—Mr. Grieve, of Culford, has, we learn from the *Gardeners' Chronicle*, succeeded in raising an entirely new Bronze Ivy-leaved Pelargonium of singular beauty. It was obtained by fertilizing an ivy-leaved variety by pollen of a bronze zonal, and the result is a well-marked gold and bronze ivy-leaved variety, of robust and compact habit, which promises to be equally useful in the flower-garden and as a pot or vase plant. The flowers are crimson; and the leaf of a rich golden tint, with a bronze zone, the older leaves becoming tinted with red at the margin. It is a great acquisition. Mr. Grieve has also raised another

hybrid ivy-leaved seedling, of which he says : "The great improvement which has already been effected in the zonal pelargonium renders further advance, though still quite possible, yet difficult to realize. On that account I beg to suggest to cross-breeders the possibility of obtaining very desirable results by turning their attention to the ivy-leaved section of the pelargonium. I send herewith a branch with blooms of a variety obtained by fertilizing flowers of an ivy-leaved sort named *Peltatum elegans*, with pollen taken from a strong-growing zonal sort known as *Culford Rose*. The plant from which the branch sent was cut, was struck as a cutting early during the spring of 1871, and was planted against the back wall of a greenhouse ; it has already densely covered a portion of the wall, 15 feet in length by 9 feet, which is the height of the wall ; but had the wall been 20 or more feet in height, it would doubtless have covered it without diminishing its lateral expansion, so rapid and vigorous are its growing powers. I was at first apprehensive that it might prove a shy flowerer, but in this respect I am agreeably surprised, as its fine dark foliage, which might readily be mistaken for that of the common Irish ivy, is now profusely decorated with its fine large trusses of rose-coloured flowers."

**THE DEATH OF MR. HOYLE.**—In the death of Mr. G. W. Hoyle, of Reading, which occurred suddenly, we lose an old florist who possessed exceedingly good taste, and who made his mark in his day. Mr. Hoyle was better known to the horticultural world from his great success in raising show pelargoniums than in any other branch of floriculture. Mr. Hoyle's varieties were always noted for their free-blooming habit. *Crusader* in 1848 was followed by *Maguet*, *Ajax*, *May Queen*, and many other fine kinds. The latest of his fine varieties, and which will be grown for many years, are *Example*, the *High Admiral*, *Charles Turner*, *Imperator*, *Gratulation*, and *Congress*. As an example of his success, it is worthy of mention that seventy-two varieties occur in a catalogue of 1872, all raised by Mr. Hoyle.

**DEATH OF THE QUEEN'S GARDENER.**—We have to announce the death of Mr. H. Rose, who for several years past has occupied the important post of superintendent of the Royal Gardens at Frogmore and Windsor Castle. For nine years previous to the appointment of the late Mr. Rose, as successor to the late Mr. Thomas Ingram, whose death it was our duty to announce a short time since, he was head gardener to the Duke of Roxburghe, at Floors Castle, by whom he was much appreciated. On Mr. Rose leaving Floors Castle for the purpose of taking charge of the Royal Gardens, he was presented with a massive gold watch and chain and a purse of money, and entertained at a banquet by the leading inhabitants of Kelso and neighbourhood, as a token of the high esteem in which he was held. Mr. Rose was well known amongst a very wide circle of friends by his geniality of manner and generous character.

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## TO CORRESPONDENTS.

**BULBOUS PLANTS.**—*Subscriber.*—As all the bulbous plants are in such an unhealthy state, the soil must be unsuitable, or the management altogether wrong. It is impossible for us to say what is the cause of the unsatisfactory state of things mentioned by you. The gladioli corms were not, we should imagine, thoroughly matured. Fern spores are produced at the back of the fronds. The plants mentioned would succeed with careful management in a sitting-room. The prices vary somewhat at different nurseries, but both may be obtained at the prices charged for ordinary stock.

*M. A. N.*—The questions shall be answered at length next month, which will be early enough for the work.

**CRASSULA.**—*C. Hipperley, Stone Easton.*—Crassulas generally flower freely enough when grown in a light position in the greenhouse. If it does not bloom this season prune it back, and when the young shoots are about an inch in length, turn it out of the pot, reduce the ball of soil, and repot in the same sized pot, and use a fresh compost consisting of three parts turfy loam, one part leaf-mould, and about the fourth of a part of silver-sand. It should be placed in the open air until September, unless a very light and airy place can be spared for it in a pit or greenhouse. Some *Passifloras* do not bloom until they attain a considerable size.

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If the latter is in an unhealthy condition, deal with it as advised for the crassula, but without pruning it. *Iresine Lindenii* is certainly not more difficult to manage than coleus, and we cannot account for your plants doing so badly.

**PLANTS FOR A WINDOW.**—*A Five Years' Subscriber.*—As you reside in a large and smoky town, plants having bold and handsome foliage should be grown in preference to those grown for their flowers. The following may be mentioned as likely to be of service to you:—*Acacia lophantha*, *Ficus elasticus*, *Dracæna indivisa*, *Corypha australis*, and *Chamærops humilis*.

*Subscriber, Bradford.*—The plants mentioned are one and the same. The two statements are easily reconciled, for a plant may be grand for the shrubbery, and unfit for the parterre, as an elephant may be grand for a procession, but unfit for a pony chaise. *Antennaria tomentosa* is quite hardy, and may be procured for about four shillings per dozen at most nurseries.

*Amateur.*—All your questions have been anticipated.

**ANTENNARIA.**—Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, N.

**BEDDING PLANTS FOR EXHIBITION.**—*M. P.*—The following would make a good group—*Lohelia Brilliant*, *Geranium Charley Casbon*, ditto *Master Christine*, or *Beauty of Lee*, *Ageratum Imperial Dwarf*, *Calceolaria Aurea Floribunda*; *Heliotropium Jersey Beauty*, if the plants are required in flower. In addition to the above you will do well to prepare *Viola Perfection*, *Lobelia Pumila grandiflora*, *Calceolaria Prince of Orange*, and two or three more geraniums. If fine foliage plants are required, select *Iresine Lindenii*, *Coleus Verschaffeltii*, *Alternanthera magnifica*, *Echeveria glauca metallica* or *E. metallica*, *Centaurea ragusina* or *C. argentea plumosa*, *Bronze Zonal Pelargonium Imperatrice Eugenie* (Downie's) *Golden Tricolor*, *Miss Batters*.

*C. B.*—Mr. Thomas Millington, glass-merchant, Bishopsgate Street Without.

**SHADING FERNERY.**—*A Lady Gardener.*—You do not give us sufficient information as to what kind of shading you require, whether a permanent blind to remain fixed all the summer, or one to roll up in dull weather; or do you want something to smear the glass with? If you wish a blind, stout tiffany, the thickest you can get, is preferable. Make the blind the proper size, and stretch tightly over the roof, and fasten with small flat-headed nails. We like smearing the glass best; it costs comparatively speaking nothing, and is at the same time very little trouble. There are two ways of managing it; we will detail both, they are equally good, and you can take your choice. But on a second thought, as you have to syringe your ferns, this will be most suitable for you. Mix some fresh lime with sufficient water to make it to the consistency of thick whitewash, and add a little clay or yellow loam, and daub the outside of the glass with it. If you find the shade is not sufficient from the first application, dress it over again. If the lime is fresh the rain will not wash it off, but you can remove it in the autumn with a moderate amount of labour by means of a scrubbing-brush. The other way that we can confidently recommend is simply painting the inside of the glass with a wash made of whiting and size, or of flour and water. This is less trouble to wash off in the autumn; on that account we prefer it for houses that are not syringed or kept moist; but for houses that are kept moist the syringing will wash some of it off the glass, which will make the plants dirty. With these considerations, we can with confidence recommend both ways, for they are cheap, easily applied, and answer every purpose for which a permanent shading is required.

**SOWING CUCUMBER SEED.**—*A Young Gardener.*—Do not sow till the heat has become steady, then sow in pots or pans, and plunge in old tan laid on the surface of the bed, or in leaf-mould that has been riddled through a coarse sieve. If to be grown on in pots, the pots should have crocks at the bottom, and nearly half filled, and three seeds sown in each, the soil being fresh light loam. We generally raise seedlings, to be turned out in pots for early fruiting, in leaf-mould and silver-sand, so as to get a good ball quickly. When the plants are well started, thin them to one, and that the strongest, and earth up by degrees with rich light loam; each plant to be stopped when it has two rough leaves. As to the amount of heat, that depends on when the fruit is required, but cucumbers will stand any heat between 85° and 90°; the more heat and moisture, the faster the growth and the finer the fruit. The best rule is to afford a bottom-heat, from hot water, averaging 80°, rising to 85°.







CLIMBING ROSE. PRINCESS LOUISE VICTORIA

## CLIMBING AND PILLAR ROSES.

*(With Coloured Illustration of Rose Princess Louise Victoria.)*

Presenting our readers with an illustration of a climbing rose, which may be regarded as one of the best roses of the last few years, because of its usefulness, we are anxious to direct attention to the fact that climbing roses are not appreciated to the extent they should be.

Of the value of roses which combine a vigorous habit with a highly floriferous character, for covering walls, trellises, and rustic work, and for training up pillars placed in suitable situations, it appears almost impossible to speak too highly. It is true that few indeed are the roses which possess a habit sufficiently vigorous to admit of their being considered climbers, have flowers of first-rate quality, or are what may be designated perpetual flowering, yet, with the exception of the Clematis, very few plants suitable for covering walls produce flowers that will bear a moment's comparison with the flowers of the commonest of our climbing roses.

This being the case, we will not stop to inquire why roses are not more extensively employed as hardy climbers, in preference to many other plants, and the trashy annuals usually employed, but instead we will point out as briefly as possible how the garden may be made more beautiful by planting climbing and pillar roses more liberally.

At the same time, we purpose offering a few hints and suggestions with reference to their management which, it is hoped, will be of service to those who are as yet practically unacquainted with this phase of rose culture.

In the first place, it must be said that to experience much success in the cultivation of climbing roses, it is essential to procure suitable sorts, and then plant them in good soil. It might be supposed that such a thorough acquaintance with these simple, yet important conditions exists amongst all who take an interest in the rose, that it is unnecessary to allude to them; but it will be wrong to do so, for it is a very frequent occurrence to meet with the commonest of the common varieties occupying positions in which the choicest kinds only should be planted; and also to stumble against plants put out in the poorest soil without its having undergone the slightest preparation previously to their being planted.

The main object of the cultivator is, as a matter of course, to cover the wall, trellis, pillar, or arch quickly, but not with such haste as to prejudice the future well-doing of the tree. For all the better class of climbing roses, the first thing requisite is to prepare the soil, so that when planted they will have every help to free growth. No matter what the position or the circumstances in which the roses are to be planted, the soil should be deeply stirred and liberally manured some time before planting takes place, for these roses are hungry, and if starved, the shoots become hard in the bark, and are reluctant to make side-shoots; and instead of making a vigorous growth at one effort, there is a succession of spasmodic efforts at growth all through the season, especially after rain, that

prevents the formation of flower-buds. To state the matter in the fewest words possible, the soil, whether at the foot of a wall or pillar, should be dressed with about six inches of fat or spit manure, and then turned up to a depth of eighteen inches or two feet.

It is further necessary to state, for the information of our readers, that climbing roses should not be confined to walls, pillars, or trellises, but instead the finest varieties should be planted freely in the shrubbery borders, and be provided with a rustic pole some ten or twelve feet in height to support them. It would be an easy matter to mention a number of gardens in which they are employed in this way, but it must suffice to say that in every case the effect produced is far more striking and beautiful than the most imaginative temperament could suppose. Indeed, nothing can surpass out of doors the effect produced by well furnished pillars when the trees are in full bloom; and when not in bloom their appearance is by no means unsightly, for the dark glossy green leafage will favourably compare with that of any other hardy tree or shrub. In nearly every case of planting climbing roses, those on their own roots are to be preferred. If not on their own roots, they should be on short brier stocks. Some kinds seem to do as well budded as on their own roots, and for the first year or two grow quicker. Like other roses, they may be planted at any time between November and March, if they have been previously growing out of doors; and, as many of them are precocious in their movements in spring, autumn planting is to be preferred. But in any case of planting out of pots, if the plants have been sheltered or grown for some time under glass, it will be best to wait until spring, and then turn them out carefully, loosening the ball of earth, but not stripping their roots entirely. If necessary, the plants may, when grown in pots, be planted at any time during the summer season without their receiving a check more severe than would be occasioned by shifting them from a small to a large pot. Dull weather should, as far as practicable, be taken advantage of for summer planting, and plants supplied liberally with water until they are thoroughly established in their new quarters. If the plants are in a weakly condition when put out, they will receive much assistance from the shade afforded by a branch of a shrub of some kind inserted near them in such a manner as to effectually protect them from the sun. The benefit derived from this screen will be immense if the weather happens to be dry and hot after planting. Shade and light sprinklings of water will, it should be remembered, be of far more service in enabling them to become established than would be the case were they to be exposed to the full sunshine, and watered liberally.

With respect to the after-management of the several varieties coming under the denomination of climbing or pillar roses, it must, in the first place, be said, that it will depend entirely on the varieties planted, how they are to be dealt with from the day of planting. Ayrshire and Evergreen roses require very little pruning at any time; but Boursaults, Rosomenes, Teas, and Noisettes require careful pruning to insure a regular distribution of the flowering



wood, and prevent increase of height at the expense of growth at the base. Any of these roses left to grow as they please will soon become mere bunches of leaves at the ends of long naked shoots. If the plants are strong when planted, tie them in sufficient to keep them safe against wind, and so leave them till the following spring. At the end of February, cut them down to within two eyes of the base of each shoot, and on no account begin with more than three shoots to each plant. The object of deferring cutting down till the spring is to prevent the premature starting of the buds at the base, as if there comes a sharp frost after mild weather those buds may be killed back after having grown a few inches, which would be a misfortune. From the three shoots there will probably start eight or nine shoots. Retain five of these, and cut or nip out the weakest as soon as you can determine which push the strongest. Supposing there is only one main shoot to begin with, cut it down to three, four, or five eyes, and from these form the plant. Train in all shoots regularly; never let them hang about, or the growth will be checked, and they will flower prematurely. At the next season's pruning, cut back all the shoots at least half their length, no matter what the length may be, and at the same time remove any weak, or ill-placed, or imperfectly ripened shoots, leaving a bud at the base if another shoot is wanted in the place from which a poor shoot was removed. The next season cut back to a uniform length, but not severely, all the leading shoots, and shorten in very moderately all the laterals, and thenceforward prune very little—no more, in fact, than is sufficient to prevent crowding at any one place, or the usurpation of the principal vigour of the tree by any one leading shoot. To keep a wall or trellis well clothed, it is needful to have an eye to the strong shoots that occasionally rise from the base. It will be well to allow one of these to rise every year; train it over the shoots that are already nailed in, and at the next pruning remove one of the old main shoots by a clean cut at the base, and let the young shoot replace it. By this means an abundance of wood full of youthful vigour will be reared, and the decay of the plant, by reason of the age of the wood, will be thereby prevented.

With respect to the best varieties, we shall not have much difficulty in selecting, for the number of really good climbing roses is not large. Of late there has been several really good varieties introduced, and of these we must speak first. Amongst light flowered varieties, we must place first the beautiful variety, *Princess Louise Victoria*, a portrait of which accompanies these remarks. This fine rose, which was raised, and recently distributed, by Mr. Knight, of Hailsham, Sussex, combines, with a vigorous growth, ample leafage, and flowers of good form, a perpetual and free flowering habit. The flowers, which are small in comparison with some of the largest now grown for exhibition purposes, are produced in large trusses, continuously from early in the summer until late in the autumn. It will be found a most valuable rose from which to cut from for the hand bouquet and button-hole. The colour is, as shown in our illustration, a warm peach, with lively carmine centre. In *Climbing Victor Verdier* we have a fine companion to the above, for

it possesses all the good qualities of Victor Verdier, with a scandent habit, and is therefore a most valuable rose. *Prince Leopold* is comparatively new, and most valuable; the flowers are large and globular, very full, and of a deep red hue. *Red Rover*, very bright reddish crimson, and *Glory of Waltham*, bright crimson, are both useful for the purpose here indicated, for they produce an abundance of flowers of good form, although not quite up to the mark as exhibition roses. Amongst other hybrid perpetuals sufficiently strong in growth to admit of their being planted against pillars, but not strong enough to be considered climbers, mention must be made of *Felix Genero*, deep violet rose; *Général Jacqueminot*, brilliant red; *Jules Margottin*, cherry red; *Perfection de Lyon*, deep rose, with lilac turn-over; and *Louise Odier*, bright rose.

Amongst the hybrids of Bourbon, Chinese, and the Noisettes, we have some fine things, the best probably being *Blairi No. 2*, pink; *Charles Lawson*, deep rose-carmine; *Coupe d'Hébé*, bright pink; *Madame Plantier*, white, very fine; and *Vivid*, bright crimson. Some of the Evergreen roses are also valuable for covering a considerable space quickly. The most distinct are *Félicité Perpétué*, creamy white; *Léopoldine d'Orléans*, white shaded rose; and *Rampante*, pure white. All three will contrast well with the varieties selected from the hybrid perpetual group, which consist chiefly of varieties producing flowers of a dark hue. But it must not be forgotten that the last-mentioned may be planted where the above mentioned hybrid perpetuals would be of little or no use whatever.

The Tea-scented roses do not succeed everywhere, and are, moreover, liable to be cut down by a severe frost; but wherever there is a prospect of their flourishing they should be planted rather liberally, and preference should be given to *Belle de Bordeaux*, pink; *Climbing Devoniensis*, pale yellow; *Gloire de Dijon*, salmon; and *Maréchal Niel*, deep yellow. *Gloire de Dijon* is perhaps the hardiest, and it will be interesting to test Coppin's *Earl of Eldon*, a fine rose, in much the same way, for the purpose of determining its value for planting in the open border. The Noisettes are rather hardier than the Tea-scented varieties, and may, therefore, be planted in more exposed situations. The following are desirable: *Céline Forestier*, pale yellow; *Fellenberg*, rosy crimson; *Jean Hardy*, golden yellow; and *Margarita*, yellow. *Cloth of Gold*, *Lamarque*, *Madlle. Aristide*, and *Solfaterre* are fine roses, but more tender than the others.

S. H.

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CHINESE PRIMULAS IN THE DRAWING-ROOM.—In a recent issue of the *Country Gentleman* a new way of using the beautiful Chinese Primrose, *Primula sinensis*, in the embellishment of indoor apartments is thus alluded to: "There are some plants that will grow and blossom with but little care or attention, but with others, constant care is needful. Among the former class, the Chinese primrose takes front rank. It will continue in bloom from nine to ten months out of twelve; and its pure white or rich pink and crimson flowers are a great ornament. So tenacious of life and health is the root, that if planted in cotton-wool, soaked with water, and not allowed to wither for want of moisture, it will put forth its tender blossoms for months. It can be thus planted in a china vase or saucer, or in a glass dish, making a lovely ornament for a parlour or boudoir table. The cost of it is small—a twenty-cent scrip will procure a fine plant, and its flowers are a certainty."

## ON FORM IN TREE SCENERY.

BY MR. WILLIAM PAUL, F.R.H.S., WALTHAM CROSS, N.

(Abstract of Paper read before the Birmingham Congress, 1872.)



TAKEN from the decorative point of view, tree scenery may be divided into the beautiful and the picturesque. As an example of the beautiful, may be instanced the avenue of Horse Chestnuts in Bushey Park; as an example of the picturesque, the groups of Scotch Pines on Hampstead Heath. Variety is the leading characteristic of the tree world. That this has not been recognized, or at least not generally acted on by those to whose lot has often fallen the disposal of our trees and shrubs in what is called ornamental planting, has long been a settled conviction with me.

I shall speak, 1st, of the form or outline of the individual tree; 2nd, of the form or arrangement of the spray; 3rd, of the form of the leaves.

1. *The Form or Outline of the Individual Tree.*—The following are five of the most distinct forms:—Irregular, the Scotch Pine; Round-headed, Robinia inermis; Laminate, the Silver Fir; Columnar, the Lombardy Poplar; Weeping, the Weeping Willow.

These I shall call representative trees, as a great portion of the tree-world may be classed under one or other of these forms. There are, however, many intermediate forms in which two or more of the above are found combined. For instance, the Oak and the Beech partake partly of the irregular and partly of the round-headed; the Cedar of Lebanon, especially when old, stands between the round-headed and the laminate. The Hertfordshire Elm is both irregular and weeping, and is from an early age one of the most picturesque of large trees. Then some trees undergo modifications of form as they pass from youth to middle and old age; but these are only so many additional points of variety which the skilful planter will know how to seize and make conformable to his plans.

A very little consideration will lead to the conclusion that, with the variety shown to exist under this one head only, very little excuse can be found for the tameness and monotony often met with in English plantations. I can well understand the reasons for, and have often admired the effect of, large masses of any one of these forms being thrown together under special circumstances. Further, nothing can be more correct or beautiful than a group, or groups, composed of any one of these when judiciously placed, and rising in harmony with each other, or with the natural features of the landscape. What I find fault with, and wish to see altered, is the unseemly jumble of trees so often met with. No guiding principles having been observed in planting, things beautiful in themselves are comparatively dull and uninteresting through the want of thought or taste in their arrangement, or even displeasing through incongruity. It is easier to condemn that which exists than to lay down any precise rules by which the uninitiated may attain the end which seems to me so desirable. I seek variety and contrast, but it must

be variety and contrast with harmony. The professional man, when engaged to put the finishing touch on a garden or estate by planting, if properly imbued with the importance of his task, should master all the natural beauties and defects of the spot to be dealt with, including its accompaniments and surroundings, and then study to increase the beauties and remedy the defects. Whether the beautiful or the picturesque predominate naturally, it should not be reduced, but heightened by every possible effort of art, and only varied by the introduction of other features of beauty in such manner that they may not rival or overpower, but remain subservient to, this dominant natural feature.

When planting in the vicinity of a dwelling-house, whether it be a mansion or a cottage, we often find ourselves under considerable restraint, because the form of the trees require to be in harmony with the character of the building. It may not be necessary to consider every style or order of architecture as requiring a different assortment of trees; for our purpose it suffices to divide the whole into perpendicular, of which the Gothic may be given as an example; and the horizontal, which is fitly exemplified by the Italian style. Irregular, round-headed, and weeping trees are in character with either; but the laminate and round-headed are most pleasing to my mind in connection with the perpendicular, and the columnar and irregular with the horizontal. If the building be low, tall-growing trees should be avoided; and the round-headed, the laminate, and weeping are especially desirable, because they direct the eye horizontally and downwards. It should ever be borne in mind that the presence of lofty trees in proximity to a low building has the undesirable influence of still further depressing it.

As examples of the grouping of these representative trees, the irregular and columnar and the irregular and weeping will, I think, be most frequently available in association. Two Scotch Pines and a Weeping Willow, or a Scotch Pine and two Lombardy Poplars, make a nice group, when variety of form, colour, and character are required. There is, however, scarcely any limit to the variety that may be obtained by the combination of these representative trees; but to make the best of them two things are necessary—a wide knowledge of the nature and appearance of the trees, and a correct taste in order to combine them in such a way that they are not only in contrast, but also not out of harmony with each other in their surroundings. When the irregular or varied dominate in the surrounding tree scenery, separate groups of the “round-headed,” the “laminate,” the “columnar,” and the “weeping” may often be sparingly introduced with good effect.

2. *The Form of the Spray and Ramification of Trees.*—This is a matter of less importance than the form or outline of the tree, because it is only distinguishable when immediately under the eye, whereas the outline of the tree produces an effect on the landscape from a considerable distance. For some purposes, trees are divided into evergreens and deciduous, the former holding their leaves perpetually, the latter losing them annually on the approach of winter. Although the spray and ramification vary considerably and equally



in both, we need here only entertain the question, so far as it appertains to deciduous trees, as, the evergreen trees retaining their leaves perpetually, the spray and ramification are almost concealed by them.

As examples may be mentioned the spray and ramification of four trees—the Oak, the Elm, the Lime, and the Beech—having chosen them because they are well known and readily accessible. It should, however, be remarked, that there are others differing as widely in form and character as these. To those who find an interest in tracing the wonderful variety in the vegetable kingdom, there is here an ample field for observation and reflection. Scarcely two trees, scarcely two branches, can be found alike.

The change of a deciduous tree from the leafy to the leafless state is a change in form and character, and hence a new sort of variety. A deciduous tree in leaf is seen in outline only; when denuded of its leaves it shows also in section. Deciduous trees are not only more varied in character than evergreens, but they are also more pictorial. There is the early and late budding of the leaves, the varied tints of which give colour to the tree scenery of spring; there is the fully-developed leaves of summer; the changing and brilliant hues of autumn; and, lastly, the interesting variety of the spray and ramification visible in the leafless trees in winter.

Permit me to remark here, that in my judgment there is no gain in rejecting either evergreen or deciduous trees when planting. Evergreens, as a rule, are massive and heavy; deciduous trees are light. Evergreens alone produce gloom, deciduous trees alone baldness; a judicious combination of the two is productive of higher results than can be obtained by the exclusive use of either.

3. *The Form of the Leaves.*—The effect of the form of the leaves, although more marked than that of the spray and ramification, is not appreciable at any very great distance. It is, however, a most important feature from a near point of view. In garden scenery it is scarcely less important than the form or outline of the tree. Leaves are numerous divided by botanists, but for our purpose the following divisions seem to me to suffice:—Needle-shaped, Pine; lanceolate, Willow; round-leaved, Lime; cut-leaved, Plane; compound, Black Walnut.

Here, as in the outline of the tree, the intermediate forms are innumerable. In garden and shrubbery planting a most complete effect may be produced by an arrangement founded on the forms of the leaves alone. But so rich and various is the material at our command here that it is by no means necessary to restrict ourselves to this one feature, trees and shrubs often producing beautiful summer flowers, coloured spring and autumn leaves, or winter berries.

With regard to the arrangement of trees and shrubs according to their leaves, violent contrasts should be avoided. I would not place a tree with needle-shaped leaves in juxtaposition with one bearing large, round or heart-shaped leaves. For example, a Scotch Pine (needle-shaped) and a Willow (lanceolate) in association would please me better than a Scotch Pine and a Lime (round-leaved). Some compound leaves associate well enough with the needle-shaped, and others produce a better effect associated with the round or cut-

leaved. The lanceolate is perhaps the most useful and accommodating form, as it stands well in contact with almost any of the others. Any one desirous of obtaining a full and accurate knowledge of this art would, however, gain more correct knowledge in a single hour by walking among the objects to be dealt with, and placing them, mentally or otherwise, in juxtaposition, than could be conveyed by a week's writing or talking.

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## ON ALPINE PLANTS:

### THEIR ORIGIN, CHARACTERISTICS, AND CULTIVATION.

[Contributed by Mr. SHIRLEY HIBBERD to the Botanical and Horticultural Congress of the Royal Horticultural Society at Birmingham, 1872.]



THE increasing taste for the cultivation of Alpine plants will, it is hoped, justify the presentation to this Congress of a few remarks on their Origin, their Characteristics, and their Cultivation. Current books on the subject contain but little useful information of a general kind, however valuable they may be to the collector as indicating species and varieties that are especially worthy of his attention. As I approve most heartily of the restrictions placed upon contributors as to the time allowed for the reading of these papers, I shall beg of those who favour me with a hearing that I may here conclude my preface, and make the briefest possible statement of the facts and opinions it appears necessary to adduce in elucidation of the three divisions of the subject selected for present consideration.

As to the first section of our theme, it appears to be necessary first to agree that we do not seek for the plants, or for the explanation of their origin, on the Alps alone. When we speak of Alpine plants, we have in view the vegetable products of mountains, without regard to the special flora of any particular peak or range. The Alpine garden of the British horticulturist may be as consistently furnished with gatherings from the Carpathians, the Pyrenees, the Rocky Mountains, and the Scottish Highlands, as from the Alps alone. But, when we consider our collections collectively, we find that they possess many features and characters in common; and perhaps the most universal and constant of their peculiarities is, their capability of resisting, and, indeed, of prospering, under exposure to long-continued cold. Their home is amongst the "thick-ribbed ice" and everlasting snows. Except when the snows shelter and hide them, they are subject to the influence of intense solar light and a highly-rarefied atmosphere, more frequently and more heavily charged with moisture than the air of the plains. When we make an analysis of the genera comprised in a fair selection of Alpine plants, we shall find no hint of morphological or biological

relationship. We may group them as Alpine plants, and there is an end of all attempts at classification; for they include shrubs and herbaceous plants of families widely separated by every recognized system of botany. But species of the same genera often occur on widely separated mountain ranges, and this fact surely affords a hint of a common origin. Now, in respect of the European mountains and those of Northern Asia, a considerable proportion of the plants met with in their higher altitudes, and especially such as haunt the snow-line and the neighbourhood of glaciers, are again met with on the plains and lower slopes of the Polar regions of the north. Between the Alps and the Norwegian Mountains there are extensive plains, which, measured by a direct line on the map, separate them by a distance of 800 miles. Yet here the Alpine flora is in great part repeated; and thence, through Northern Lapland, and Siberia, and further north still, the same plants occur—apparently rejoicing, and certainly thriving, in climates so rigorous, that both their animal and vegetable products are restricted to a comparatively few types, and these adapted by constitution and conditions least favourable to organic development. Where earth and sea are icebound for eight or nine months in the year, and the coasts are blocked with icebergs during the few long days of summer, these plants hold their own with wonderful pertinacity, and, in their short season of continuous sunlight, make the dreary landscape smile with their fresh green herbage and their lovely flowers. It is impossible to avoid the suggestion of the coincidence that these hardy plants owe their origin to conditions formerly subsisting between the far-removed Alpine and Polar regions, but which long since ceased to exist. May we not, therefore, say that, in all probability, the Alpine flora is (to use a geological phrase) an outlier of an ancient Polar flora, and a witness to-day of the glacial era, when the northern parts of Europe and America were covered with fields of ice? The probable common origin of Alpine and Polar plants was long ago suggested by Professor Schouw, in his “Earth, Plants, and Man;” but it has been lately considered in a more systematic manner by Dr. A. Pokorny, in his “Origin of Alpine Plants.”\* The first-cited of these writers observes that “The Polar flora, or, as we may term it, the Alpine flora, is not merely met with in the higher regions of the Alps—the highest mountains in Europe; it is found everywhere in Europe, and the northern parts of Asia and America, where mountain masses present themselves high enough to furnish a suitable climate to these plants in their more elevated districts. Hence we find this flora in the Pyrenees, in the Sierra Nevada, the Carpathians, and the Caucasus; in the Norwegian, Scotch, and Icelandic mountains; and traces of it are seen on the highest peaks of the Apennines and the Grecian chains. It is also seen in the Altai and other Asiatic mountains, and on the higher chains of North America.” To find an explanation of the relation of these far-separated floras, we must, without doubt, go far back in time, and endeavour to picture the Northern Continents as they must have

\* “De l’Origine des Plantes Alpines.” Paris, 1871.

appeared in the glacial era. Then, indeed, the mystery appears to be solved. We find on the Faulhorn, at an altitude of 8000 feet, 135 species of flowering plants, of which forty are found also in Lapland, and eight in Spitzbergen. In Saussure's "Garden of the Glacier," in the middle of the Mer de Glace of Mont Blanc, at an altitude of 9000 feet, may be found eighty-seven species of flowering plants, of which twenty-four are also found in Lapland, and fifteen in Spitzbergen. The distribution of land and water has undergone vast changes; the great plains of Europe now separate districts that were united by fields of ice; and the Alpine and Polar floras are put so wide apart, that, unless we had abundant testimony of their former unity, the hypothesis of a common origin would not be worthy of a moment's attention.

When we investigate the relationships of Alpine plants among themselves, we find, as above remarked, no distinct physiological, botanical, or morphological intimacies. For this reason it is, perhaps, that writers on Alpine plants have been careful to avoid the important question of their direct relation to the peculiar conditions under which they are produced. What are the proper characteristics of Alpine plants? We shall find no answer to the question in the books, for our friends who teach us how to select and cultivate them confound the products of different zones, and are as ready to regard pines, firs, and larches as Alpine plants, as to place in that category the soldanella, the silene, and the androsace. The fact is, we have nothing to do with trees, shrubs, or grasses in this connection. We must ascend towards the snow-line to find those plants of low, cushion-like growth, producing comparatively large flowers notable for the purity of their colours, to which alone the term "Alpine" can be properly applied. And when we find them, we are at once struck by certain characteristics of growth and aspect, which are the evident analogues of the circumstances governing their development. In other words, they are related by their adaptation to their silent homes, where winter rules nine months in the year, where spring is characterized by frosty nights and changing days, in which sunshine and shower are ever contending, and where summer and autumn are unknown.

We dismiss all trees and shrubs from our consideration and ask again, What is an Alpine plant? It is not an annual. If an annual were lodged on the bleak mountain top, it could not perpetuate its race, for it could not have time to ripen and distribute its seeds. All Alpine plants are of necessity of perennial duration, herbaceous or sub-shrubby, and of close stunted growth. Their growth in height is restricted by the rigours of their Polar clime, and their frequent and long-continued covering of snow favours a lateral extension and promotes the close, turf-like habit common to them all. It is especially worthy of observation that we rarely meet with hairy or downy plants on Alpine heights, and never with examples of spines or thorns. In Professor Schouw's enumeration of the characters of these plants, he remarks, "that moist soils produce smooth plants, and dry soils plants furnished with hairs and thorns; since, therefore, the soil in which Alpine plants grow is kept con-



stantly moist by the flowing down of melted snow, we see in this the reason of that peculiarity.

It is equally consistent with their conditions of life that they should be strangely sensitive to any increase of temperature above the freezing-point. The first loosening of their icy bonds is followed by an awakening of their energies, and they burst into flower with the earliest encouragements of the kindly sunshine that ushers in their brief season of activity. Their early flowering promotes the ripening of their seeds ere winter seals them up again, and, indeed, none but early-flowering plants are capable of permanent existence in a climate characterized by almost continuous winter. The low temperature of the higher Alpine regions sufficiently accounts for the absence from Alpine flowers of honey and fragrance, and, it may be added, of poisonous secretions; yet from many of them cattle derive subsistence, and from a few we obtain bitter extracts that are serviceable as medicine. There remains, indeed, but one prominent peculiarity which appears to be inexplicable as a necessary consequence of the circumstances by which these plants are surrounded, and that is the comparatively large size of their flowers. Their pure colours we may reasonably associate with the intensity of solar light they enjoy in their short season of growth; but why their flowers should as a rule exceed in size, proportionately to the plants producing them, those of their nearest relatives of the plains is probably at present beyond our means of determining.

It may be said that these considerations are without interest, for the so-called "practical" man. The creature who rejoices in this designation may take his own course, and despise everything in the nature of scientific inquiry; but if he will not heed these matters he can never make fair progress in the cultivation of Alpine plants, and had best therefore reserve his practical skill for the hewing of wood and the drawing of water, or any other occupation that may be carried to a successful issue in ignorance of the ways and works of nature. The cultivation of Alpine plants must be founded on a clear perception of their requirements, for they will not alter their nature to please us. Now, it must be confessed that the difficulty of providing for their requirements presents an insuperable obstacle to their general diffusion in English gardens. It is the business of this paper, however, to indicate how, to a certain extent, difficulties may be overcome, so that those who would for their pleasure establish Alpine gardens may be encouraged in the commendable enterprise.

The Alpine garden will include many plants that require no particular care, and that, indeed, have long since been naturalized in our parterres and borders. But it will also include a number of exquisitely beautiful subjects of a most untractable nature, and for these we must make careful provision. It is obvious that for their especial benefit our efforts should be directed towards the establishment of the coldest possible local climate. The "cold shade of the aristocracy" will not avail much, but an extensive rockery, containing a great bulk of material, and ranging generally east and west, with deep inlets on the northern side, will afford a choice of aspects: the sunny side for the free-growing rock plants with which

we are most familiar; and the shady side for the more fastidious of our genuine Alpine flowers, that are usually killed out when subjected to the ordinary influences of our climate.

It is particularly worthy of notice that a constant flow of water, however minute in quantity, exercises a powerful influence in cooling the surface over which it flows. The water should flow from the highest parts of the rockery in the thinnest possible film over the greatest possible extent of surface. A simple rill will be comparatively useless, and the same may be said of a fountain bubbling from the rock. For purposes of ornament, however, these features may be added, and they may, indeed, be made much of by planting near them subjects adapted to afford suitable garniture. But for maintaining a constantly moist condition of soil, and reducing the temperature of the whole mass to the lowest degree possible, the water should rather be spread in a sheet than accumulated in rivulets or pools. It is by favouring evaporation that the cooling effect is obtained; and if the rockery is constructed of a porous stone or any other suitable material of a porous nature, the evaporation will be increased, greatly to the benefit of the plants. All cements and vitrified masses are objectionable, because they neither absorb moisture nor promote evaporation, and therefore should be employed as little as possible, and it will always be better if they are not employed at all.

On the construction of rockeries and the selection of plants, ample and trustworthy directions may be found in the books. The object of this paper is to supplement the labours of writers on Alpine plants by considerations that have not been entertained by them. We may, therefore, pass to the consideration of another method of growing Alpines, which has not as yet obtained the attention it deserves, and in respect of which the writer has had ample opportunity of testing its efficiency.

It may appear paradoxical to propose to grow these plants under glass; and yet, when this method is properly conducted, the most happy results may be insured. We need low-roofed unheated structures, with substantial brick foundations and large beds of soil, supported by brick walls in place of ordinary stages. By means of free ventilation, the plants may always be kept as cool as the climate will allow, and they can be protected against those destructive alternations of temperature which characterize the early months of the year, when, lacking their proper covering of snow, they are apt to be forced into growth prematurely, only to be suddenly shrunk up again by biting east winds, or washed away by a deluge of rain at the moment of attaining to the full display of their beauties, as though blessed by the brief spring-time of their native heights. As our summers are too long and too warm for Alpine plants, so our winters are too short and too changeable, and it cannot be doubted that the visitations of genial weather we are accustomed to in the early months of the year are as injurious to Alpine plants in the open air as any of the many adverse influences that assail them in our gardens. For the structure which we shall designate the "Alpine house" selection should be made of Alpine plants that are especially adapted

for pot culture. Their name is not legion, perhaps, but enough may be found to afford in the spring season a display at once attractive and unique, and the more acceptable to the amateur because, being flowered under glass, they may be enjoyed on dreary days when "the winds whistle and the rains descend." This method of providing conditions suitable to Alpine plants is attended with the advantage that it enlarges the field of spring gardening, for not only Alpines proper, but a multitude of exquisitely beautiful hardy plants that are usually too much buffeted by our unkind springs, may be cultivated with them, and the result may be a widely-varied display, perfect in all its features, in a season when the garden presents scarcely one green leaf or one bright flower to mitigate the misery of drenching rain and killing easterly winds.

Should the taste for Alpine flowers continue to extend as it has done during the past few years, the Alpine house will become a necessary and acceptable institution, and probably will acquire an importance equal to that of any other of the many contrivances adopted in connected with decorative horticulture.

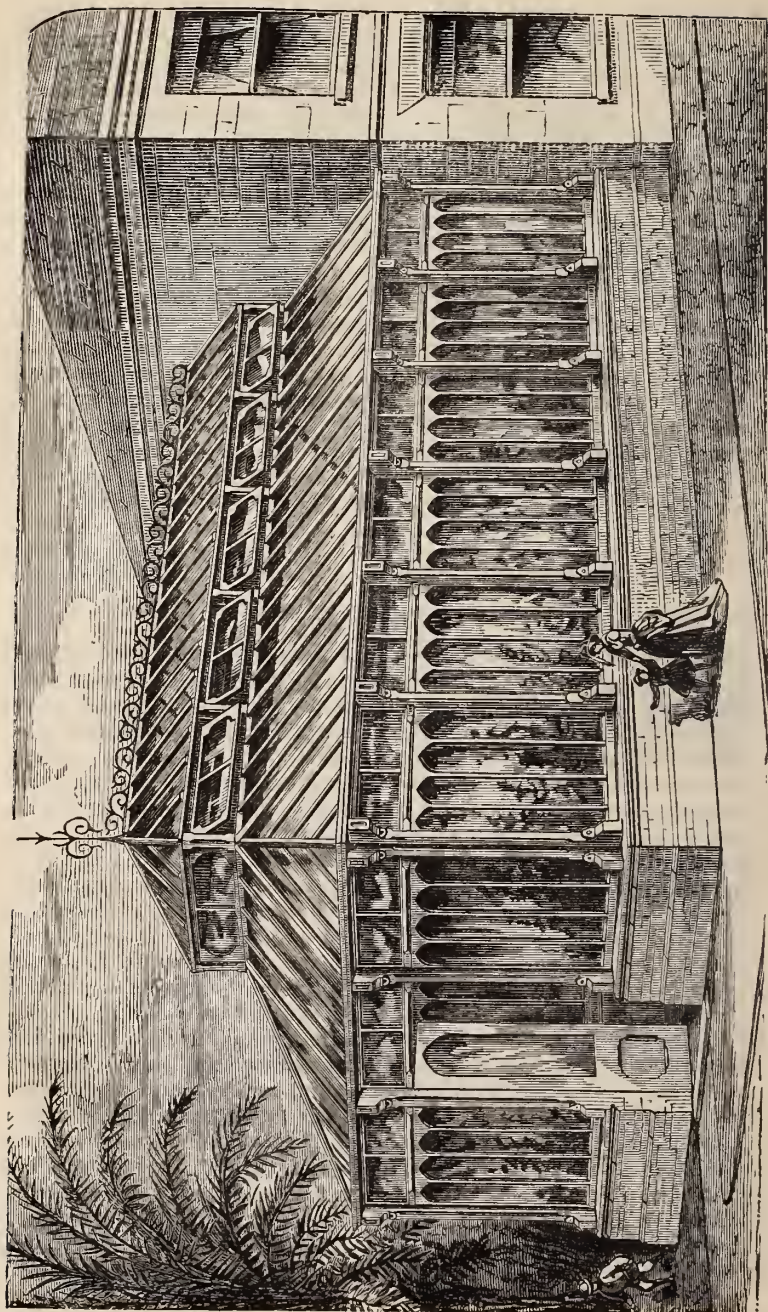
## THE CONSTRUCTION OF CONSERVATORIES.

BY GEORGE GORDON.



THE erection of a conservatory is of necessity somewhat costly, and not what may be designated an every-day occurrence in any one garden. Therefore, considering the cost and permanent character of the building, it is most important that it should be erected in such a manner that it will enhance the beauty of the garden, harmonize with the dwelling-house, and be suitable for the growth of the plants with which it will be chiefly filled. Its size must be determined by the dimensions of the mansion, and as no specific directions can be given upon this point, it will, perhaps, be useful to observe that it must be neither too small nor too large, for on the one hand it will have a poor appearance, and on the other it will give the mansion an insignificant appearance. In design it should be rather plain than otherwise, unless the mansion is of a palatial character, and then it must be made to correspond with it. Generally conservatories attached to middle-class residences are too elaborate in design, and the fact that structures, the designs of which are of the most elaborate character, are not always the most elegant, appears to be lost sight of altogether when the design is determined upon. Whether it should be attached to the house or not, must depend upon local circumstances, but whenever practicable, it should be erected so as to be easily accessible from the drawing-room, for if the conservatory has any value at all, it is certainly when, by reason of the unfavourable character of the weather, it is impossible to take outdoor exercise. In some quarters a prejudice exists against the conservatory being attached to the house, because





CONSERVATORY DESIGNED BY BOULTON AND CO.



it is feared that the dampness necessary to the plants is hurtful to the health of the inmates of the house, and injurious to the furniture.

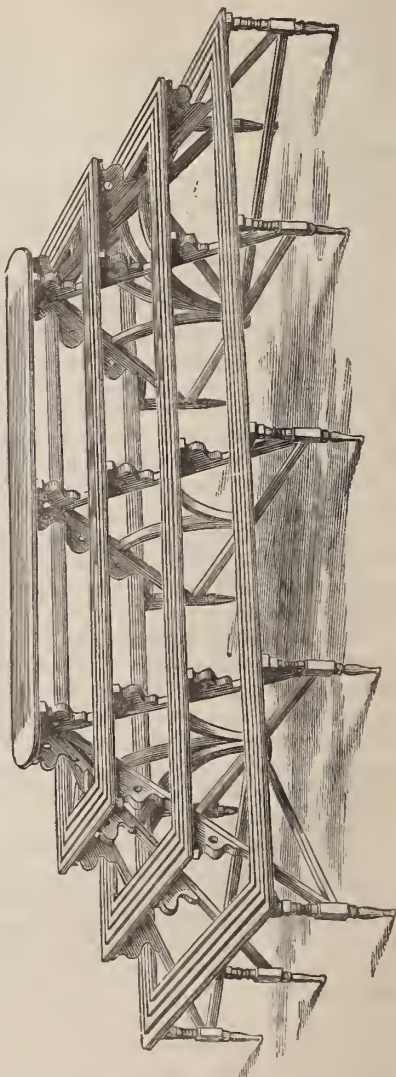
Space will not admit of this question being discussed at the present moment, but any objection to having the conservatory adjoining the house may be easily removed by having a small vestibule between the conservatory and drawing-room. In fact, wherever space can be spared for them, it is desirable to have a vestibule which may be decorated in a manner most pleasing to the taste of the proprietor, but, as a rule, a few groups of statuary are preferable.

They may also be filled with the choicest plants if desired, provided there is sufficient light for them. Conservatories are supposed to be erected for the display of plants in bloom, backed up with such fine foliage plants as may be necessary; but as, in the majority of cases, they are occupied by a considerable number of plants permanently, it is necessary to erect a structure in which the plants it is intended to cultivate will, with ordinary attention, be able to make a satisfactory progress. There does not appear to be sufficient attention paid to this point, for it is a very frequent occurrence to see, on the one hand, small conservatories filled with palms, and other large growing subjects, which look as if they would push through the glass, and, on the other hand, large structures, designed in the most elaborate manner, devoted to geraniums, and other dwarf-growing things of a similar character. To secure satisfactory results, it is essential that grand conservatories should be embellished with plants of noble growth, and smaller structures decorated with plants proportionate to their size, for gigantic specimens in a small house naturally make it appear less than it really is.

It is of course impossible to offer any one design as suitable for all gardens, because tastes differ considerably, and so much depends upon the style of the house, and other local circumstances. The accompanying design is, therefore, simply suggestive as being suitable for mansions of various sizes and styles of architecture. It is, moreover, simple, yet elegant, and eminently suitable for the cultivation of all plants suitable for its decoration. The structure here portrayed has been designed by the well-known firm of Messrs. W. S. Boulton and Co., Horticultural Builders, Rose Lane Works, Norwich, and was exhibited by them at the Great Exhibition of the Royal Horticultural Society at Birmingham, where it was much admired for the elegance of design and the excellency and substantial character of the workmanship. It would not be of much practical service to speak of the details of construction, further than to state that ample means should be provided for ventilating and heating to enable those who have the management of the structure to be able to keep the temperature down in the summer and up in the winter, so as to admit of the collection being inspected at all times and seasons with some degree of comfort. Consequently, the temperature during the summer should be as cool as a due regard to the health of the occupants will permit, and during the winter at or about 50°, the exact temperature being, of course, regulated by the weather outside. With respect to heating, it is essential that

sufficient piping should be fixed to admit of the proper temperature being maintained in the severest weather without heating the pipes excessively, for when the water is kept near the boiling point, the heat given off is not so well for the health of the plants or so pleasant to the visitors.

For conservatories above the medium size, it will, as a rule, be preferable to have a bed in the centre, with a walk all round, and a flat stage about thirty inches in width between the walk and the glass. The centre bed should, of course, be devoted to Palms, Tree Ferns, *Dracænas*, and other subjects in the same way, and *Camellias*, and fringed with smaller growing plants in flower, according to the season of the year. The side stages should be devoted to the choicer kinds of flowering plants, such, for example, as those belonging to the hard-wooded section, which would receive material injury if placed some distance from the glass, for a considerable period. In large structures two or more beds would be desirable. The *Camellias* may be planted out with advantage, and the bed of soil covered with spar or shingle. Smaller-sized structures should have a stage in the centre, and the accompanying design, also by Messrs. Boulton and Co., and exhibited by them at Birmingham, is the most suitable that could be had. It combines strength and lightness, and affords ample accommodation for the plants. The stage may be flat, but the one here represented will be decidedly the most suitable. It is also a capital stage for green-houses.



PLANT STAGE FOR CONSERVATORY.

In houses of all kinds provision must be made for the growth of climbers, of which there is now an abundance to select from. They

all do well in large pots or tubs, but they grow with greater vigour, and occasion less labour in their management when they are planted out in a border. The proper place for the border is underneath the side stage, and it should be of the same width as the stage, and about three feet in depth. If the hot-water piping is fixed underneath the stage, the stems of the climbers can be protected from the excessive heat by means of two pieces of board fastened together in the form of a V. The piping may be fixed underneath the pathways, but owing to the great loss of heat, it is not desirable to have the pipes below the ground level. They should, of course, be hidden, and in the case of structures thirty or forty feet in width, four rows of pipes down the centre, in addition to those on each side, will be required.

The paths can be of either stone or tiles, and when the latter are employed, they can be either plain or ornamental, according to the taste and means of the proprietor. The ornamental patterns, if not too elaborate, are of course preferable for structures contiguous to the drawing-room.

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## ALLAMANDAS.

BY J. W. SILVER,

Head Gardener, The Laurels, Taunton, Somerset.



**I**N making a few remarks on the cultivation of this glorious and valuable stove plant in the FLORAL WORLD, there is no necessity for lamenting its unpopularity, as few plants are more thoroughly appreciated, both for exhibition purposes and the embellishment of the stove. Small specimens for the latter purpose may be cultivated without the slightest difficulty, and will amply repay the cultivator in a very short time, as young plants treated as will be advised as we proceed, will bloom much earlier than the majority of stove plants.

Allamandas are less rapid in growth than many other stove plants of a similar habit; but for splendour and effectiveness when in flower, they are certainly without an equal. They may be grown in pots, or trained to the roof of the house, according to the option of the cultivator. Trained up the pillars, or under the rafters of plant-houses, they produce an exceedingly pleasing effect; the only objection to this mode of training consists in their being deciduous. They lose their leaves to a certain extent more or less when at rest. This, however, is not so serious as it at first appears, for it enables the light to pass directly to the plants underneath without hindrance, at a time of year when every ray of light is of the utmost importance. Young plants are the best for planting out, and the spring is the most suitable time for planting them, as they commence to grow at once, and are not long in becoming established. Great care must be taken in the formation of the border in which they are planted, for if the soil is allowed to become saturated and sour through con-

tinual watering and imperfect drainage, the plants will assuredly perish. The most suitable position for planting is, where practicable, over the hot-water pipes, by forming a chamber. In this way, by using an abundance of drainage, and having the compost moderately rough, there is little fear of the soil becoming saturated.

With respect to the management of specimens in pots, it appears desirable to state at once that the main essentials of success are an abundance of light, heat, atmospheric moisture, and an open yet rather rich compost. As all the species are quick growers, every encouragement must be given from the time they commence to start in the spring until the bloom buds begin to expand. They must, therefore, be shifted on without being allowed to become potbound, because every check tends to throw them into flower prematurely. This, as a matter of course, applies to growing young plants into specimens. Large specimens, as a rule, will be satisfied with one shift annually. In repotting the young specimens, guard against using pots too large; two sizes larger than the one already occupied will be quite sufficient. The size of the pots in which they are to flower must be determined entirely by the size and health of the plants.

It is a very common occurrence to meet with very large plants growing most luxuriantly, yet producing few flowers; the cause of all this is undoubtedly want of light. Those who have hitherto failed in securing a fine and abundant crop of flowers may rest assured that by full exposure to both light, sun, and air, they will be found to bloom abundantly. Those under my charge are not shaded, except from the brightest sunshine, and there need not be the slightest fear of the specimens being injured by sunshine if the plant-house is well ventilated, and the walls and floors occasionally sprinkled with water during the day, for the purpose of maintaining a sufficient degree of atmospheric humidity.

When they have filled the pots in which they are to flower with roots, liberal supplies of liquid manure will assist them immensely; this should be of the same temperature as the house in which the plants are grown. Copious supplies of water are of the greatest importance during the whole of the growing season. The compost in which they thrive most satisfactorily is prepared by well incorporating together two parts of the very best yellow turfy loam, one part peat, and one part well-decayed cow manure, with sufficient silver-sand added to the whole to keep it well open. The loam and peat should be used in a rather lumpy condition, but the cow-manure should be beaten up fine, in order that it may become well mixed with the soil. The most suitable period for repotting large specimens will depend upon the time they are required to bloom. Plants required to be in bloom in July and August should be repotted from the beginning to the middle of February. Young plants that require pushing on may be shifted as required for the purpose of maintaining a vigorous growth.

With respect to training, it is only necessary to state that the young growth should be stopped once or twice during the first season, in order to form a compact brush, but in subsequent years



they will require to be stopped under exceptional circumstances only.

The style of training may be left to the taste of each cultivator ; the best trellis to my mind for training the growth is one made in the shape of a barrel, as it enables the cultivator to train the shoots much more easily, and also to arrange the flowers very effectively. The winter pruning must be performed immediately before or just after Christmas. The weakest of the shoots may then be cut back to one bud, and the stronger to within three or four buds of the base.

The best varieties for all purposes are :—*Allamanda grandiflora*, *A. Schottii*, *A. Hendersoni*, *A. violacea*, and *A. nobilis*. *A. Chelsoni*, a new kind recently introduced by Mr. Bull, is very free-flowering and attractive, as was recently exemplified by a large specimen exhibited at a recent exhibition of the Royal Botanic Society in the Regent's Park.

## THE RAPID PRODUCTION OF MUSHROOMS.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



CONSIDERING the high value of the mushroom as an article of food, and the comparative ease with which a good crop can be produced, it appears strange that they are not grown more generally in what may be termed middle-class gardens. Very little space is required for making a mushroom bed, and wherever a shed or outhouse can be spared, a good crop of this wholesome and nutritious esculent may be obtained. The cultivation of mushrooms cannot be carried on in such small gardens as may at first seem apparent, because space is needed for the preparation of the manure with which the bed is formed, independent of that required for the bed itself. A cellar is perhaps of all others the most suitable place for the mushroom bed, yet it cannot be considered a desirable one when we consider the litter that would be occasioned in the house when the bed is formed and also when removed, nor is it desirable because of the noxious exhalations which would arise from the manure when in a state of fermentation, and no one will be prepared to assert that the exhalations would be otherwise than injurious to the health of the inhabitants. Where the cellars are away from the house, or placed in such a manner that the beds can be made up without taking the manure through the house, and also means adopted for preventing the atmosphere of the house being tainted in the slightest degree, the cellar should be selected in preference to an outhouse, especially for beds expected to be in bearing from October onwards.

Some writers, who have never grown a mushroom in their lives, have been ready to recommend growing mushrooms in tubs and boxes, and have presented us with pictures of beds made up in these receptacles,

bearing such enormous crops as to lead the inexperienced to suppose that to be an interesting and profitable way of growing them. Now after many years' experience, I have no hesitation in advising those who are anxious to obtain a good supply of mushrooms at the least possible amount of trouble and expense, to dismiss at once from their minds all ideas of attempting to grow them in little boxes, tubs, and other portable receptacles of a similar character, as being unworthy of a moment's consideration, and likely to incur more labour and trouble than the results will warrant. To have a crop sufficient to reward the cultivator for his trouble the bed must be of considerable size so that it will retain its heat, and continue in bearing for an extended period.

With reference to the proper size of a mushroom bed it may with safety be said that it should be not less than three or four feet in width, eight or ten feet in length, and fifteen inches in depth. When of less dimensions than those here mentioned, the bed will barely pay for the trouble of making it, because of its soon becoming cool, and ceasing to produce mushrooms. Heat and moisture are both essential to the production of good crops, and in proof of this we have only to consider the conditions under which they are produced naturally in the fields. A moment's consideration will show that they are always produced the most abundantly after a period of warm sunny weather succeeded by genial showers. Therefore it is difficult to regulate the heat and the moisture properly when the beds are very small. Too much heat and moisture are as hurtful as an insufficiency of those elements; in fact, more so, because the spawn will remain dormant in the bed when too cold and dry, ready for action as soon as the conditions are more favourable to its development, but when the bed is too hot and wet it will perish. Also when the temperature of the structure in which the bed is made is too high, the yield will be very small, and extend over a comparatively short period only.

The beds must be made chiefly of horse-droppings, and short litter shaken out of the body of fresh manure when removed from the stable, and a moderate proportion of maiden loam. Some growers recommend horse-droppings only, but it will be found not only more economical, but the beds will continue in bearing much longer when the short litter and loam are added. To prevent any misunderstanding upon this point, it will be well to state that about a part each of the short manure and loam should be used in proportion to three parts of the droppings. The droppings and litter should be carefully preserved and placed under cover to keep it dry and be spread out rather thinly to prevent its heating until sufficient has accumulated to make up the bed. The soil also should be rather dry and placed under cover, but kept separate from the manure. When a sufficiency of the latter has been obtained, it should be thrown into a heap, and turned over once. It does not require turning over in the same way as when intended for a cucumber or mushroom bed; because, by so doing, some of its most valuable properties will escape into the air. When the violence of the heat has subsided somewhat, make up the bed to the depth indicated

above. As the manure is put in its place, add the loam in such a manner that it will be regularly mixed with the former; and beat the bed as each layer of loam and manure is put on, so as to make it thoroughly firm. When the formation of the bed is completed, insert a stick in it, and examine it every morning. If the heat becomes too strong after a few days, bore a few holes in the bed by thrusting a stake into it, just to allow the excess of warmth to escape. Examine the bed frequently, and immediately the heat begins to decline, fill in the holes and spawn the bed. This is done by inserting the spawn, previously broken up into pieces to the size of a large walnut, in the bed at a distance of about six or eight inches apart. When this is completed, sprinkle a thin covering of dry and fine loamy soil, and in a few days afterwards cover with two or three inches of the same soil in a moderately moist condition; but it will be safer to put the soil on quite dry, than too wet. It is impossible to say how long a period should elapse between spawning and covering the beds; but if the temperature of the latter is on the decline, and does not exceed 80°, which is a good temperature to commence with, the soil should be put on in three or four days; if the temperature exceeds this, the work must be deferred according to the excess of temperature. If the temperature is lower than 80°, cover the bed a day or so earlier, and also cover if convenient with a layer of dry hay.

The bed must be watered when necessary by means of a watering-can to which a fine rose has been attached; but as it is important that it should be kept moderately moist only, the watering-can must not be brought into requisition more frequently than is really necessary. The water should be tepid when used, and if diluted drainings from a stable are used instead of clear water, it will be highly advantageous; in fact, exhausted beds have been renovated by means of liberal applications of stable drainings.

The mushrooms should be gathered by pulling them up by the stalks when it can be done without disturbing those not large enough for gathering. When the base of the stalks are left in the bed, they frequently become infested with grubs, to the injury of the young mushrooms. A very common impression prevails, that other mushrooms spring from the base of the stems of those gathered if allowed to remain; but it is altogether wrong to imagine anything of the kind, for the small buttons which are frequently seen clustering round the base have each an independent existence, and the removal of old stems, unless they are disturbed, does not affect them in the slightest degree.

Good crops of mushrooms may be obtained in frames, during the autumn and winter, which have been filled during the summer season with cucumbers or melons. Previous to spawning the bed, the soil should be levelled down; when the old vines are removed, and if a greater depth than six inches, remove two or three inches from the surface. Let the spawn be inserted in the manure of which the bed consists, and if dry give a moderate soaking of water, and afterwards keep the bed just moist and no more. The temperature should be kept at or about 60°, and after the beginning of October the assistance

of a little fire-heat will be necessary to keep the bed in full bearing. Old cucumber or melon beds will frequently produce an astounding quantity, and remain in full bearing until February of the following year. If the pits are heated by means of fermenting materials, a lining applied when the bed is spawned and another six or eight weeks afterwards, will be of immense assistance. Cucumber beds may be spawned before the vines are cleared out, without any injury to the cucumbers.

By following the directions above, there will be no difficulty in securing an abundant supply of mushrooms throughout the autumn and far into the winter, without the aid of a properly constructed mushroom-house. For the assistance of those readers who do not keep horses, it will perhaps be well to say that horse-droppings collected from the roads, make excellent beds, when mixed with a little chopped straw and maiden loam.

## A VALUABLE AUTUMN AND WINTER VEGETABLE FOR SMALL GARDENS.

BY JAMES CALVERT.



IF the many useful vegetables in season during the autumn and winter, there is not one more valuable to the kitchen gardener than *The Rosette Colewort Cabbage*. It is of easy culture, will grow in any moderately manured soil, and will produce in a very short time, even in the space of a few weeks, an amount of produce quite startling to the inexperienced amateur; so that, humble as the subject may appear, a few practical notes on its proper management will not be out of place.

The Colewort Cabbage is small and quick-growing, and a sweet delicious green during the autumn and winter months. By the time these notes reach the reader, it will be the time to sow the seed for this season's supply. One ounce of seed will be enough for an ordinary sized family. It must be sown thinly in an open spot, as this, in common with all other cabbage or broccoli plants, suffers severely if too thick in a bed. The seed-bed must be kept uniformly moist, either by shading or watering, and when well up the plants should be kept growing by an occasional watering. If this is attended to in due time, the plants will be fit to go out by the middle or end of August. It is not necessary to manure expressly for them, unless the ground has been impoverished by the preceding crops, but they should have a tolerably rich soil well forked up. They should be put out fifteen inches apart each way, but through the last half of September and October a foot each way will suffice; so that it will be seen what a number of plants can be put upon a small piece of ground, and what a corresponding amount of produce it will return—at a time, too, when the near approach of winter would prevent



it being put to any other purpose. The use of this little green is to be encouraged in preference to any other sort of cabbage, as proved in my own garden last autumn, for being short of the Rosette Colewort, a number of plants of Battersea cabbage, from a sowing made early in the summer, were put out, and to my surprise they stood through the winter without even becoming large enough to cut for greens.

The ordinary precaution of watering must be attended to when planting out Coleworts, and when they have made a good start the hoe should be plied freely through them on fine dry days. Do not be afraid of putting out too many, and do not let any crop in the garden stand one day longer upon the ground than is actually necessary, but destroy it, and fork over the land, and prick out some more of these plants. This practice should be vigorously followed up, either till the ground is all full, or it is too late to plant any more. This "too late" is hardly applicable to this case, for in mild winters I have planted in the beginning of November, and cut nice little greens in January. In cutting them for use, choose those first that have the firmest hearts, as these are the ones which first feel the effects of a sharp frost. By the timely removal of such crops as dwarf kidney beans, some of the late crops of peas, and potato quarters, a good space of ground can be secured, and a plentiful supply of greens for the winter depended upon. If it were not for this useful cabbage, the supply for the London markets would be very scanty during the late autumn and winter months. Readers in the country would be astounded, were I to tell them how many acres of these Coleworts are grown every year for the London markets, and which are pulled up by the root and tied four or five in a bunch. I have merely named this to show how its good qualities are esteemed by those who know its worth, and I hope every reader of the FLORAL WORLD who is not familiar with this excellent cabbage will grow it this season on my recommendation; I can promise them it will fully justify the praise I have bestowed upon it if they do it justice.

In conclusion, it appears necessary to say that in many parts of the country the larger kinds of cabbages pass under the designation of Coleworts or "Collards" before the hearts are formed, and that the Colewort here mentioned is a small hearting variety, quite distinct from cabbages of the ordinary type. This is mentioned to prevent any misunderstanding. Unquestionably it is one of the best vegetables of its class extant.

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DEATH OF THE REV. W. ELLIS, THE CELEBRATED MISSIONARY AND TRAVELLER. It is with regret that we announce the death of the Rev. W. Ellis, which occurred at his residence, Rose Hill, Hoddesdon, at the age of 77. Mr. Ellis was from his earliest days intimately connected with the London Missionary Society. In the course of his labours, Mr. Ellis spent a considerable period in Madagascar, and it is from the interesting plants introduced by him from that country, and the splendid collections of orchids grown at Rose Hill, that he is best known to the horticultural world. The most important of the plants introduced by Mr. Ellis is the beautiful Lattice-leaved Plant, *Ouvirandra fenestralis*, and that magnificent orchid, *Angræcum sesquipedale*. Mr. Ellis has also introduced a few valuable ferns, one of the most important being perhaps *Adiantum asarifolium*.

August.

## KITCHEN GARDEN WORK.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, N.



PERHAPS there is not so much work to be done in the kitchen garden during August as there is in some of the earlier months in the year, but there are several matters of importance which require attention, and it is my intention to briefly direct attention to them.

The plantations of winter greens of all kinds should have been formed two months, or at least six weeks ago, to insure fine crops; but it may be useful to many amateurs to know that there is still time to plant most of the borecoles. The plants will of necessity not become so large as those put out earlier, and therefore to economize the space they should be planted much closer together. It will be thus seen that quarters which are being cleared of potatoes and summer crops, such as peas, beans, and cauliflowers, may be again planted. The crops planted now will be of considerable value, as forming a succession to those put out earlier. The strongest plants should be selected, and put out as early as possible, as every day is now of importance.

The present moment is especially favourable for forming plantations of coleworts, which are of especial value for late autumn and early spring. Those planted now will be ready for use during November and December. They should be planted about a foot apart each way. A sowing may also be made early in the month, for furnishing a supply of plants to put out for spring use; they must be put out as early as possible to enable them to become well established before the winter, as they withstand the effects of the weather better when the roots have a firm hold of the soil.

Cabbages of all kinds may also be planted out with a reasonable prospect of their yielding a good supply of tender hearts by the end of the autumn. The quick-hearting kinds are to be preferred for planting now, and as they do not occupy so much room as those which require more time to attain their proper size, they are preferable for small gardens. For any of the small sorts allow a distance of twelve inches apart in the rows, and let the rows be fifteen inches apart. The plants should be strong, and put out as early as practicable. Sowings of the most favourite kinds must be made about the middle of the month, for planting out during the autumn for spring supply. Sow in a sheltered corner, and allow all the plants not required to remain in the seed bed, to fill in the spring all the blanks that may have occurred during the winter, and to form fresh plantations if required. It does not appear to be generally known that when plantations are made in the spring from autumn sowings, a capital succession to those put out in the autumn is obtained without having recourse to very early sowings in heat. The best for sowing now to stand the winter are Enfield Market and Wheeler's Imperial.

At the end of the month in late districts, and about the middle of the following month for early localities, cauliflower seed must be sown for securing a supply of plants for wintering under glass. It is not a bad plan to make two sowings, so that in case of a warm season, and the plants from the first sowing becoming too large, there will be a supply of plants of the proper size to fall back upon. Early in October they should be planted in frames raised above the ground level, or they may be wintered in any of the portable structures now before the public. In favourable districts and mild winters a considerable number may be wintered safely, planted at the foot of a wall or fence. The old Walcheren is perhaps the best for sowing in the autumn.

The best crops of very late peas are undoubtedly obtained from such kinds as *Ne Plus Ultra* and *British Queen*, sown early in the season, but by sowing some of the very earliest varieties now a satisfactory crop may, if the weather happens to be favourable, be obtained. *Ringleader* and *Alpha* are the two best sorts to sow now. The drills must be well watered previous to sowing. In small gardens it is not desirable to sow peas thus late in the season, for they may be occupied with something more profitable. A moderate breadth of turnips should be sown in the first or second week, to succeed the crop obtained from the July sowing. Sow the seed in drills, and thin out as soon as the plants have attained sufficient size. The main crop sown in July will also require attention in the matter of thinning and protection from the fly. Soot or lime sprinkled over the bed when the leaves are moistened with the dew, are the best remedies. It is also very desirable to sprinkle the bed with lime or soot just as the plants are making their appearance, to protect them from the ravages of this pest. *Early Six Weeks* and *White Stone* are both useful for sowing now.

Salading requires especial attention to prevent there being any break in the supply late in the autumn. The principal subjects to be thought about now are endive and lettuce. A fresh bed of each should be planted at once for late autumn and winter use, and a fresh sowing made to form a succession. The plants from the new sowing must be put out in a sheltered position; such, for example, as the foot of a wall having a south aspect. For securing a supply of plants to stand the winter, for spring use, sow about the middle of September, and winter in a cold frame, or at the foot of a wall. Those planted now, and at the end of the month, will be in prime condition for transferring to the frames for winter use.

The use of the hoe must be steadily persevered with, as it is very essential that all crops should be kept perfectly free from weeds, and the surface soil frequently stirred.

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**DEATH OF MR. GEORGE LIGHTBODY.**—We have the painful duty to announce the death of our esteemed friend Mr. George Lightbody, of Falkirk. As a raiser and cultivator of auriculas and tulips, Mr. Lightbody obtained a high and well-deserved reputation, and as a man he was esteemed and highly respected by those who had the pleasure of his acquaintance.

August.

## GARDEN GUIDE FOR AUGUST.

**KITCHEN GARDEN.**—This month offers the last fair and favourable opportunity for securing a sufficiency of winter and spring produce in the kitchen garden, and whatever is to be done *must* be done to make sure of supplies at a time when it is impossible to get them up quickly. Plant out every morsel of winter greens that may be left in seed-beds, or where first pricked out to strengthen, including broccoli, cabbage, kale, etc., etc. Sow collards, Red Dutch, and Sugarloaf cabbage, endive, Hammersmith lettuce, salad onions, Golden and Normandy cress, Flanders spinach, Stone turnip. Leeks may still be planted out, and those already grown to good size may be earthed-up to blanch them. Peas lately sown must be supplied with water, unless favoured with much rain. It commonly happens that late sown peas become hopelessly infested with mildew, and make no return. Spinach must be sown now for winter. The common prickly spinach is an excellent variety, but the true Flanders is far better. Turnips may still be sown to stand the winter, but it will soon be too late to sow any kind of seeds for winter crops. Celery to be earthed-up with care after heavy rain or a good watering; take care the mould does not get into the hearts.

**FRUIT GARDEN.**—Now is the best time in the whole year to make new strawberry beds, to insure good bearing next year. If rooted runners are plentiful, take the best only, and destroy all the weak ones; but any varieties it is thought desirable to propagate to the utmost, sort the runners as to sizes, planting the forwardest and strongest in beds to bear, and the late weaker ones in separate beds for stock; these latter will not probably bear till the year after next, and then will be strong plants. Strawberries to fruit in pots next year ought by this time to be strong, and in need of a shift. The soil should be strong loam, well chopped over with rotten dung, and the plants to be potted firm.

**FLOWER GARDEN.**—Geraniums should be propagated towards the end of the month by cuttings in the open ground in a sunny place, or singly in thumb-pots in frame, or on a moist bed in a house facing south. If this work is postponed, the plants will be more difficult to keep through the winter. If quantity is an object, every two joints, one joint in and one out, will make a good plant; but one joint will do very well of any variety it is necessary to cut hard, as to form roots a joint in the soil is not necessary, as the internodes will root nearly as soon as the joints. Carnations, Picotees, and Pinks to be propagated largely now from layers and pipings, both easy and certain methods. Pansies to be propagated from cuttings of young wood; the old hollow stems are quite unfit for the purpose. Keep the cuttings shaded, and sprinkle frequently, but the soil of the cutting pans only moderately moist. Beds to be planted to stand over winter should now be deeply dug and manured, which will tend to reduce wireworm, as they will be turned up in the process and be destroyed. Dahlias want a heavy mulch after the ground has been lightly forked. This is said to harbour vermin, but



practically its few disadvantages are balanced by the superior health of the plants and the beauty of the flowers, and the labour of watering is got rid of. Bedding plants to be propagated without delay for next year. To save trouble both now and during winter, select towards the end of the month a few strong plants of *Verbenas*, *Tropæolums*, *Petunias*, and *Lobelias*, and pot them in large pots, with one-third of drainage in the pots, and shut them up in a frame, and keep shaded for a week; then let them be exposed to all weathers till the probability of frost requires them to be housed. Keep these to force for cuttings next spring, so as to be free of the necessity of propagating any of them now. The whole stock of *Geraniums* and *Calceolarias* for next year's bedding should be struck this season. *Cerastium* may be left out all winter, so no need to propagate that now. If thought desirable to propagate *Verbenas* now, in order to have an early bloom next year, take the points of growing shoots about three inches in length, and strike in pans of sand, and from these shift—not into pots, but into shallow boxes of any convenient form and size, in which they will winter better, and occasion less trouble in watering.

**GREENHOUSE AND STOVE.**—*Camellias* must be looked over at once. Many old plants will be found wanting water, and the best way to deal with them will be to plunge the pots to their rims in a tub of water for half an hour, to thoroughly soak the ball through. If allowed to continue very dry, now that their buds are set, the buds will fall off. Young plants that have not quite filled their pots with roots must be only moderately watered. Hard-wooded plants that have been exposed to all weathers in pits and plunge-beds, and in the flower-garden, must shortly be returned to their proper places in the greenhouse for the winter. It is not that there is any fear of frost just yet, but we may have long-continued and chilly rains, and these plants ought not to be exposed to such vicissitudes. Plant-houses of all kinds should now undergo a thorough purification, and all necessary repairs should be completed, that all may be dry and sweet before fires are lighted, and shelves are crowded with plants. The neglect of these matters until the drenching autumn rains occur is common enough and bad enough. At the present time any kind of plants may be set out of doors if needful, or room may be found for them in other houses while repairs proceed. But in a few weeks hence it will not be so safe to turn things out, nor will there be so much room to spare in houses only partially occupied.

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**CULTIVATION OF COTTON PLANTS AT SOUTH KENSINGTON.**—The hot-house for cotton plants in the west grounds of the International Exhibition was opened on the 1st of June, and has been a considerable source of attraction to the visitors to the International Exhibition. It was arranged under the superintendence of Major Trevor Clarke and Mr. Barron, and contains nearly a hundred cotton plants in different stages of growth, and of the following varieties: *Sea Island*, *New Orleans*, *Sea Islands* crossed with *New Orleans*, *Uplands* (green seed), *Egyptian*, *Borneo*, *Chinese*, *North-West Provinces of India*, *Hinginghat*, *Juree*, *Vine Cotton*, *Assam*, *Arboreum*, and hybrids raised by Major Trevor Clarke.



## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

### CARNATIONS.

24.—*Scarlet Bizarres*.—Admiral Curzon (Easom), Captain Thompson (Puxley), Dreadnought (Daniels), Lord Napier (Taylor), Sir Joseph Paxton (Ely), William Pitt (Puxley).

*Crimson Bizarres*.—Colonel North (Kirtland), Eccentric Jack (Wood), Lord Goderich (Gill), Lord Milton (Ely), Rifleman (Wood), Warrior (Slater).

*Scarlet Flakes*.—Annihilator (Jackson), Christopher Sly (May), Ivanhoe (Chadwick), John Bayley (Dodwell), Mr. Battersby (Gibbons), Sportsman (Hedderley).

*Purple Flakes*.—Dr. Foster (Foster), Earl of Stamford, Florence Nightingale (Seeley), Mayor of Nottingham (Taylor), True Blue (Taylor), Squire Meynell (Brabbon).

*Rose Flakes*.—John Keel (Whitehead), Lovely Ann (Ely), Nymph (Puxley), Poor Tom (May), Queen Boadicea (Emsall), Rose of Sharon (Emsall).

*Pink and Purple Bizarres*.—Captivation (Taylor), Falconbridge (May), Fanny (Dodwell), John o' Gaunt (May), Sarah Payne (Ward), Shakespeare (Puxley).

**THREE CARNATIONS (for winter flowering)**—18.—Archmède, yellow fringed, tipped red; Astoria, yellow, scarlet, and white; Beauty, pure white, pink stripe; The Bride, pure white; Delicata, pure white, margined pink; Defiance, large; crimson; Evening Star, scarlet, and crimson flaked; Garibaldi, purple, very sweet; La Pureté, ruby; Le Grenadier, scarlet; Hope, scarlet and crimson flake; Jupiter; scarlet; La Géante, blood-red; Magna coccinea, crimson clove; Queen of Whites, white, a true clove; Souvenir de la Malmaison, rosy flesh, very fragrant; Vandaël, yellow self; Victor Emmanuel, pure yellow, rosy crimson flakes.

### GLOXINIAS.

12.—*Drooping*.—Alice, Beresford, Brilliant, Claude Lorraine, Duke of Wellington, Fleur de Flandre, Léon Vanderwee, Monsieur Devinck, Mathilde de Lande-voizin, Montfort, Ne Plus Ultra, Prima Donna, Titian.

**GLOXINIAS, Erect**.—12.—Acton Green, Baron d'Itajuba, Belle de Meulan, Comtesse de Barra, Cupid, Empereur du Brésil, Emile Hussion, Formosa, Louis Vallerand, Mons. Brongniart, Mons. Alphand, Monsieur Sédillot, Princess Alexandre.

### PANSIES.

*Selfs*.—Arab, Cherub, Dr. Robert Lee, George Keith, Imperial Prince, Locomotive, Masterpiece, Miss Ramsay, Miss Muir, Snowdrop, Virgo. *Yellow Ground*.—Adam Scott, A. Whamond, Thomas H. Douglas, George Wemyss, George Wilson, J. B. Downie, John Downie, John Currie, Prince of Wales, Rev. J. Virtue, Thomas Martin, Victor, W. Martin. *White Ground*.—Hon. Mrs. Menzies, Lady Lucy Dundas, Lavinia, Mrs. Galloway, Mrs. Hopkins, Princess of Wales, The Queen.

**FANCY PANSIES**—24.—Avoca, Black Prince, Dewdrop, Earl of Rosslyn, Hugh W. Adair, Indigo, Lady Montgomery, Maccaroni, Magnificent, Miss J. Kay, Mrs. Adair, Mrs. Laird, Mrs. R. Dean, Mrs. H. Northcote, Madgalene Tweedie, Major Mackay, Miss B. Arbuthnot, Mrs. F. Hope, Peter Campbell, Princess Alice, Rev. J. Robertson, Striped Queen, Wonderful, William Hay.

**BEDDING PANSIES**.—Great Eastern, white, with bluish blotches; Cloth of Gold, golden yellow; Imperial Blue, rich blue; Cliveden Yellow, Magpie; Pride of Rufford, yellow.

### PICOTEES.

24.—*Heavy Red edge*.—Colonel Clerk (Norman), Countess of Wilton (Holland), Exhibition (Elkington), John Smith (Bonus), Lord Valentine (Kirtland), Mrs. Norman (Norman).

*Light Red edge*.—Ada Mary (Smith), Agnes (Taylor), Miss Holbeck (Kirtland), Miss Turner, (Taylor), Mrs. R. yuolda Hole (Turner), Wm. Summers (Simmonite).

*Heavy Purple edge*.—Admiration, (Turner), Lord Nelson (Norman), Mrs. Bayley (Dodwell), Mrs. Summers (Simmonite), Nimrod (Fellowes), Pieco (Jackson).

*Heavy Rose edge*.—Aurora (Smith), Elsie (Kirtland), Flower of the Day (Norman), Gipsy Bride (Wood), Priucess Aliee (Kirtland), Scarlet Queen (Wood).

*Light edge Rose*.—Lucy (Taylor), Maid of Clifton (Taylor), Miss Sewell (Kirtland), Miss Wood (Wood), Mrs. Fisher (Taylor), Rosy Circle (Payne).

*Light Purple edge*.—Amy Robsart (Dodwell), Ganymede (Simmonite), Lady Eleho (Turner), Mary (Simmonite), National (Kirtland), Priucess of Wales (Kirtland).

PICOTEES, PERPETUAL-FLOWERING.—Ascot Giant, Ascot Yellow, Prince of Orange.

## PINKS.

24.—Beautiful, Bertram, Blondin, Charles Waterton, Delicata, Devies, Dr. Maclean, Eleho, Emily, Eustace Excelsior, John Ball, Lady Craven, Lady Clifton, Lizzie, Lord Herbert, Marion, Maud, Mrs. Maclean, Perfection, Pieturata, Rev. G. Jeans, Superb, Vesta.

PINKS (for forcing).—12.—Alba multiflora, Anna Boleyn, Claude Pink, Garibaldi, Lady Blanch, Most Welcome, Plato, Napoleon III., Purity, Hybridus multiflorus, Rubens, White Nun.

## HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY.—EXHIBITION OF ROSES, July 3.—The exhibition of Roses at South Kensington, on the above-mentioned date, was one of the largest and best display of cut roses ever held. The trade growers were very strongly represented, and the competition in all the classes was exceedingly good. The blooms presented by the amateur growers were on the whole also very good. In the great class for seventy-two single trusses the stands were so evenly matched that equal first prizes were awarded to Messrs. Paul and Son, Cheshunt, and Mr. R. B. Cant, Colechester, both of whom staged blooms of the finest possible quality, and the two stands comprised nearly if not all the finest show roses at present in cultivation. We therefore have enumerated a few of the best in the two stands. Messrs. Paul and Son had Horace Vernet, La Fontaine, Charles Lefebvre, Madame Charles Wood, Monsieur Boneeune, Duchesse de Morny, Thorin, Madame Vidot, Duchesse d'Orléans, Princess Mary of Cambridge, Alfred Colomb, Devoniensis, Félix Genero, John Hopper, Louise van Houtte, Sophie Coquerel, Madame Laurent, Olivier Delhomme, Léopold Hausberg, La France, Vicomtesse de Vezins, Comtesse de Chabriland, Edward Morren, Duc de Rohan, Dr. Andry, Mme. Hector Jacquin, Exposition de Brie, Anna Alexieff, Princee Camille de Rohan, Marquise de Castellaue, Macaulay, Madame George Paul, Antoine Ducher, Céline Forestier, Baronne Haussmann, Camille Bernardin, Madlle. Eugénie Verdier, Souvenir d'un Ami, La Baronne Rothschild, Marguerite de St.-Amand, Queen Victoria, Charles Rouillard, and Marie Baumann. Mr. Cant had Duke of Edinburgh, Dr. Andry, François Louvat, Madame Vidot, Rubens, Thorin, Emilie Hausberg, Jean Lambert, Mons. Woolfield, Edward Morren, Charles Lefebvre, Madlle. Eugénie Verdier, Comtesse de Paris, Louisa Wood, Beauty of Waltham, Souvenir d'un Ami, Maréchal Vaillant, Maurice Bernardin, Devoniensis, Maréchal Niel, Félix Genero, Antoine Ducher, Ferdinand de Lesseps. Mr. Charles Turner was second, Mr. Keynes third, and Mr. Cranston, Hereford, fourth. Messrs. James Veitch and Sons, Chelsea, Mr. Mitchell, Piltdown Nurseries, Uckfield, and Messrs. G. P. Francis and Co., Hertford, also exhibited capital stands.

EXHIBITION OF ROSES AT MANCHESTER, July 5 and 6.—The second of the exhibitions of roses and fruit held under the auspices of the Botanical and Horticultural Society of Manchester has been most successful. Last year the exhibition of roses was of an experimental character, but from the support it received, both from growers and the public, the success was such as to justify its being repeated, and, judging from the results of the exhibition just held at Old Trafford, there is every reason to suppose that it will be repeated annually.

August.



**ROYAL BOTANIC SOCIETY.—THIRD SUMMER SHOW, July 10.**—The most interesting part of this exhibition was the display of dinner-table decoration, épergnes, and hand and table bouquets. A few good stove and greenhouse plants were contributed and a few orchids, and the remaining space upon the banks filled chiefly with ferns, fine-foliage plants, and groups of plants arranged for effect. The display of fruit, as at the previous exhibition, was very small indeed, and the exhibitors were chiefly limited to those resident within a short distance of the metropolis; for the small prizes which are now offered for fruit hardly suffice to pay the expenses.

**PERPETUAL FOUNTAINS FOR DINNER-TABLES AND CONSERVATORIES.**—At the exhibition of roses in the Gardens of the Royal Horticultural Society at South Kensington, July 3, and at the exhibition of dinner-table decorations on July 10, in the Gardens of the Royal Botanic Society, Regent's Park, Messrs. Defries and Son, 147, Houndsditch, exhibited a most elegantly designed fountain for the conservatory and one for the dinner-table, both being well entitled to the designation of "Perpetual." They can be made to play for an indefinite period without the aid of tanks or pipes, and other expensive accessories, and with but a small amount of attention. The one intended for the conservatory can therefore be placed in any part of the structure, and shifted about as may be desired, and a design such as that exhibited would produce a very rich and pleasing effect placed in a prominent position in the conservatory and partly surrounded with palms and other plants of a bold or graceful habit. They are simple in construction, and just under the basin a receptacle for the water is provided, which in general appearance is somewhat similar to the sand-glass; this hangs on a pivot, and sufficient water is put into it to fill one end, the end containing the water is turned uppermost, and the water is forced up through one of the arms which support the basin, and as it falls into the latter it descends down the other arm and into the lower end. As soon as the highest end has become empty its position is reversed, and this is repeated when necessary. The height of the jet of water can be easily regulated, and the only attention required is to reverse the receptacle for the water when required. The large fountain exhibited was manufactured in iron, with a glass basin for the water, and receptacles are provided upon which ornamental pots containing flowering or ornamental plants may be placed if it is so desired. For conservatories attached to dwelling-houses and vestibules it can have the heartiest possible recommendation. A smaller fountain, manufactured in electro-plate and glass, was intended for the dinner-table or drawing-room, and provided with small hanging glass baskets for holding flowers. As those for the dinner-table do not intercept the view across the table, they are well adapted for the purpose for which they are designed, and moreover are rich in appearance. The smaller sizes will be very valuable for drawing and hall rooms, as perfumed water may be employed, and as the water may be used several times before it quite parts with the perfume.

**ENOOTHERA MARGINATA.**—This plant is altogether unique amongst its congeners as regards habit and appearance. Commencing at the base, the flowers continue to issue in long succession from the axils of the leaves, and are elevated vertically over remarkably slender tubes, fully a span in length, in a way to produce a beautiful effect. The flowers, as compared with the plant, are of great size, and pure white. The stigma is cruciform and considerably exserted. The description just given, we are quite aware, is very imperfect, and conveys a still more imperfect idea of this fine thing. As yet, so far as we are aware, this *Enothera* is without a specific name. It comes from the State of Utah, North America, and was communicated to Dr. Moore by his friend M. Roezel, of Zurich. When we saw the plant at Glasnevin, it promised to seed freely, and we hope ere long to see it widely distributed, and taking a prominent position in the choice herbaceous border, or cutting a figure in some phase of subtropical gardening, for which its dwarf habit and exotic appearance seem to render it very suitable.—*Irish Farmers' Gazette*.

**PRESERVING CUCUMBERS.**—A Russian correspondent of the *Revue Horticole* thus describes a method of preserving cucumbers:—The cucumbers are washed, placed in a barrel in layers with herbs such as fennel, parsley, tarragon, onions, and rose leaves intermixed. Sometimes allspice or long pepper is added. When the barrel is nearly full, a solution of salt (1 lb. to 123 litres of boiling water) is poured when cold into the barrel through a small hole in the top, which is afterwards tightly corked. The barrels are kept in a cellar or in a house, and when required for use the cucumbers are sliced and sent to table. Sometimes a little vinegar is used in addition to the salt.



## TO CORRESPONDENTS.

**WORMS IN FERN CASE.**—*Novice.*—You should be very careful in selecting the soil, so as not to use any infested with worms. Lycopodiums should be dibbled regularly over the surface, at a distance of two or three inches apart, in small tufts.

*An Old Subscriber* is informed that the American Early Rose Potato requires the same treatment as other potatoes. The crop was undoubtedly injured severely by the frosts experienced late in the spring.

*J. T. B.*—The specimen was too much shrivelled to admit of its identification when it reached our hands.

*J. S. M.*—We have had no experience in the working of the apparatus, and cannot, therefore, offer an opinion as to its merits.

*Ignoramus.*—Take the cuttings in September or October, and take them off in such a manner that they will have a small heel attached to them. Put them in a border of sandy soil, and press the soil very firm.

**ZONAL PELARGONIUMS.**—*Subscriber, Bradford.*—The beds should be dressed with manure or leaf-mould if the soil is very poor, for although zonal pelargoniums thrive in soils of a hot and hungry character better than other classes of bedders, they must have something to support them.

**RUSTIC CHAIRS, ETC.**—*Floriculture.*—We have frequently recommended Mr. Gurrey, of Brook Street, Upper Clapton, for rustic work, but there are many equally trustworthy tradesmen in the line.

**WINTERING CUTTINGS OF GERANIUMS.**—*Novice.*—The cuttings to be wintered in a cold frame should be struck early in the autumn, to admit of their becoming well established and firm in the wood. They should be struck at once in the open border, and potted as soon as furnished with a few roots. Admit air on all favourable occasions, but not during periods of frost, snow, and damp, foggy weather. The soil must be kept quite dry for a month or six weeks in the depth of winter. We expect your cuttings perished through being kept too moist.

**FERNS, UNHEALTHY.**—*B. Wade.*—Adiantums are the easiest of all ferns to grow, but it is a bad practice to wet the fronds. Water them without the rose.

**TAKING-UP ANEMONES.**—*Young Florist.*—Take the roots up the first fine day, thoroughly dry them, and keep in a cool dry place until the planting season comes round again, in the autumn, and dig up the beds and plant with any of the ordinary bedding-plants which you may have to spare.

**RED SPIDER ON WALL TREES.**—*Amateur.*—Give the trees a thorough good washing with an engine every morning, early enough for the trees to get partly dry by the time the sun shines upon them. We have tried many plans, but this appears to be the most effectual.

**WHAT TO DO WITH FORCED STRAWBERRY PLANTS.**—*R.H.S., Yorkshire.*—If the plants which have been forced are of the right kinds (and we presume they are), plant them at once, after properly trenching and manuring the ground, if this necessary operation has not been already done. Plant them firm, and if the weather is dry, give the plants several thorough good soakings of water; they will soon become established, and form fine plump crowns, which will produce good crops of fruit next season, and most probably a few fine dishes this autumn; but this is not always to be depended upon. Next to the forced plants come the runners, which should be layered the same as plants intended for forcing. We cannot understand why the great body of gardeners will follow the old plan of allowing the runners to grow in a mass together until September, and then tear them up and make fresh plantations; for a whole season is lost, as the plants have no more time than is sufficient for them to become established firm enough to keep the worms from dragging them out, whereas runners layered in small pots and planted out immediately they are nicely rooted will, with a few waterings, produce good crops next summer.

**MANAGEMENT OF PEACH AND NECTARINE TREES AFTER THE CROP IS GATHERED.**—*Lady Gardener.*—When you have gathered the crop of peaches and nectarines, syringe the trees well, and give what water is necessary; nearly as much attention is necessary after the crop is gathered as before, if a good crop is expected the following season. The trees require plenty of moisture at the roots and overhead up to September, the one to assist in the completion of the growth

August.

of the young wood, and the other to keep the red spider and other pests in subjection, which have had it nearly all their own way whilst the fruit was ripening. Some of our practicals lose sight of this, and fancy all they have to study is to look after the trees well from Christmas until the crop is ripe, forgetting that it is equally as important to look after the trees the remaining part of the year, and see to the production of the flower-buds, for without them no fruit can be had.

**FIGS DROPPING PREMATURELY.**—*A Young Gardener.*—The trees from which the fruit is falling off before ripe are most probably suffering from drought or too much water at the roots; either extreme would cause the mischief you complain of. Examine the soil carefully with a trowel or spade, and you will soon see where the mischief lies. Give plenty of air in dull weather. Very good crops of figs can be grown on the back walls of vineries, if the vines are not planted too close together. We should not advise you to plant them if you grow especially for exhibition; but for every-day work you can secure good crops of figs without interfering with anything else. That it can be done with good management we have no doubt, for we know several places where it is done, and successfully, too.

**PROPAGATING GLOXINIAS FROM LEAVES.**—*An Amateur Gardener.*—Gloxinias are easily propagated by inserting the leaves with an inch or so of the stalks round the sides of the cutting-pot. These should be left in the pots until the following spring, when, on shaking the soil out of the pots, the young tubers will be found. It will be readily seen at once whether the leaves root; those that do not will soon die off, whilst the others will remain fresh, and stand up as stiff and firm as those upon the plants.

**RUST ON GRAPES.**—*H. R.*—The bad appearance of the berries of the Black Hamburgs is what is commonly known as "rust." It is quite useless to adopt any remedy now, but you must guard against its repetition. Theories are advanced sometimes of its being caused by the use of rusty scissors in thinning the bunches, and the hair of the operator's head coming in contact with the berries. We admit it to be an utter impossibility to avoid touching the bunches now and then accidentally, but we believe that nine-tenths of the rust on grapes is caused wholly by a cold current of air passing over the grapes when they are very small, and necessarily very tender. We have seen grapes injured this way through being too near the hot-water pipes.

**RAISING PENTSTEMONS FROM SEED.**—*Beta.*—Sow the seed in pans full of light soil, such as loam and leaf-mould, equal parts; sow thin, and then the young plants can remain until they are stout and large enough to prick off without being drawn up weak and spindly. When they are large enough, prick out into a bed of good soil, and in the autumn plant out in their permanent quarters. Cover the pans with a piece of glass, or place them in a cold frame; shade the bed with a piece of canvas or mats for a few days after pricking the seedlings out.

**CULTIVATION OF THE VARIEGATED HYDRANGEA.**—*Alice.*—Cuttings of this beautiful variegated variety of the common hydrangea may be struck either in the greenhouse or stove, so long as they are kept rather close; pot off when rooted, and use two parts good loam and one part of rotten dung and leaf-mould; keep dry through the winter, and in the spring cut back to the lowest pair of buds; remove a portion of the old ball, but without seriously injuring or breaking the roots about. Shift into larger pots when necessary, and place in an intermediate house or vinery for a short time to help them to get established in their new quarters. This routine of reducing the ball and repotting must be carried out annually, and the old shoots cut back. Give plenty of water when the plants are growing vigorously, but keep dry through the winter, or the roots will perish. Some growers do not trouble themselves about pruning the plants, and let them flower; this is a decided mistake, for the flowers are not so good as those of the green form, and when the plants are not headed back they make a lot of useless spray instead of a few fine growths and large leaves. If you want to grow hydrangeas for flowers, grow nothing but the green form.





LEUCIS CAPILLATA L.



## PRIMULA JAPONICA.

(With Coloured Illustration of *Primula Japonica rosea*.)

OF the many new plants which have been introduced of late years, none are more deserving of the special attention of amateur cultivators than *Primula Japonica*, a variety of which we have the pleasure of figuring upon the present occasion. It is robust in growth, very free flowering, wonderful showy, and perfectly hardy; and although it should receive the protection of a cold frame when in bloom, for the purpose of preserving the beauty of the flowers as long as it is possible to do so, it may be most successfully cultivated by those who have no glass whatever. The foliage is very large and ample, well-developed specimens having leaves as much as twelve inches in length, and four inches in width; and from the centre of these rise stout flower-stems, which ultimately attain a height of eighteen or twenty-four inches, and bear numerous whorls of flowers, as here portrayed, those comprising the top whorls expanding as the lower ones fade. Hitherto the principal bulk of the plants met with have borne only one flower-spike, but a few extra large specimens that have been exhibited have proved, in the most unmistakable manner, that as they acquire strength each crown will produce several spikes, and if undivided, each specimen will bear an almost unlimited number, and present a glorious appearance.

For the introduction of *Primula Japonica* we have to thank that well-known traveller, Mr. Robert Fortune, who has introduced so many valuable plants to our gardens, from Japan. We had long heard of this splendid novelty, but until the importation by Mr. Fortune of the seed from which the first stock of plants was raised, by Mr. W. Bull, a few years since, all attempts to import it failed, and none reached this country possessing sufficient vitality to germinate, the transmission to Europe apparently destroying its germinating power. Now, however, seed is plentiful, and may be procured at prices ranging from eighteen-pence to half-a-crown per packet, according to their size. The plants seed very freely under cultivation. Plants are also comparatively cheap.

We had no sooner become accustomed to the typical form than a considerable number of most beautiful varieties were introduced to notice, bearing flowers ranging in colour from the purest white to the richest carmine. A very beautiful striped variety has also made its appearance, which will no doubt be much valued for its distinct character and pleasing appearance. The names and descriptions of the species and its varieties, at present in commerce, are as follows:—

*Primula Japonica*.—Rich purplish crimson, with ring of bright crimson round a clear golden-yellow eye.

*Primula Japonica alba*.—This variety produces white flowers, with a golden-yellow zone round the eye.

*Primula Japonica carminata*.—Pure carmine-red, with a maroon-crimson ring round the eye.

*Primula Japonica lilacina*.—Eye surrounded by a zone of orange-red, shading outwards to a beautiful rosy lilac, the outer portion of the corolla lobes being white.

*Primula Japonica rosea*.—Very distinct, with flowers of a lilac-rose, and having a crimson ring round the eye.

*Primula Japonica splendida*.—Flowers of a deep bright magenta, the zone of a rich bright crimson colour.

For information on the culture of the Japanese Primrose and its varieties, we must refer to the directions given by Mr. Cannell at page 206, which possess especial value, for Mr. Cannell has been remarkably successful in the cultivation of a large collection.

## BEDDING PANSIES AND VIOLAS.

BY JOHN WALSH.



**B**EDDING Pansies—that is, varieties having a vigorous habit and hardy constitution—are highly floriferous, and bloom early in the season, and are so showy and attractive, that a few should be grown wherever the room can be found for them. The most distinct in colour and earliest flowering varieties are most valuable for spring bedding, and as they are easily propagated, and require but little attention, they can be highly recommended.

First, as to the manner of propagation, which, I need hardly say, can be effected either by means of seed or cuttings. Cuttings are preferable, although some of the varieties reproduce themselves with a tolerable degree of accuracy from seed. The young shoots, which are now pushing up in abundance, are the best for cuttings, and the tops, if taken off about two inches below the point, and cut through just under the joint, will quickly take root and form healthy plants. Previous to taking the cuttings, prepare a sufficiency of shallow boxes or seed-pans, by first placing a layer of small potsherds in the bottom, and then filling up with light sandy soil, and finishing off with a thin layer of sand on the surface. The soil and sand must be pressed firm, and have a moderate soaking of water before the cuttings are inserted. The latter simply require cutting through under a joint, and the lowest pair of leaves removed. They can then be inserted in the boxes at a distance of an inch apart each way. As is well known to the pansy grower, the cuttings must be inserted rather firmly, pressing the soil to the side with the dibble.

As each box is filled, place it in a cold frame, and water moderately through a rose to settle the soil about the cuttings; shade from sunshine, and keep rather close. In a day or two the frame may be ventilated a little, and the ventilation increased gradually, but sufficient air must not be admitted to cause the cuttings to flag. During the first week or two it will be more advantageous to

admit the air during the night, and keep the frame close through the day; the main point being to secure a change of air without exposing the cuttings to the effects of drying currents. A sprinkling overhead, each day, towards the evening, will be of considerable assistance until such times as they are struck, and then they can be watered as required.

When nicely rooted, plant them out in a shady position, about six inches apart each way, and keep them well watered until they become established. The soil in which they are planted from the boxes should be light and rather sandy, to encourage the production of a mass of fibrous roots. It is a capital plan to mix a good proportion of leaf-mould with the soil, previous to putting out the cuttings.

In October, when the flower-beds are cleared of their summer occupants, the plants can be lifted and planted in their permanent quarters. If this is done carefully and expeditiously, they will hardly feel the shift, and quickly become established.

The best of the old varieties are *Cliveden Blue*, *Imperial Blue*, *Cliveden Purple*, very fine and free; *Cloth of Gold*, *Cliveden Yellow*, and *Hooper's Sunshine*, a peculiar shade of buff; and *Cliveden White* and *Great Eastern*, white. All the fancy varieties are suitable for borders, but the above are the best for producing solid blocks of colour. The best of the *Violas* are *Lutea Major*, yellow, better than the form known as *Lutea grandiflora*; *Imperial Blue Perfection*, *Blue Perfection*, *Enchantress*, lavender blue; and *Magnificent*, deep blue.

There are several new varieties of considerable merit, but of these I must defer notice for the present. Mr. Richard Dean, the Seed Grounds, Bedford, has, it appears, succeeded in raising several that promise to be exceedingly valuable, and are therefore worth looking after by those who are interested in these plants.

## MULTIPLICATION OF ROSES FOR THE MILLION.

### No. II.



T gives me much pleasure to find by the letters which have reached me of late, that the directions given in the *FLORAL WORLD* for July, for the propagation of roses from eyes and cuttings have been exceptionally acceptable to the readers, and that many amateurs, who considered it impossible to strike roses in the manner recommended, have been very successful. Amongst the letters which have been received upon the subject, a considerable number contain requests for information relative to the management of the cuttings after they are furnished with roots, and with these requests I now gladly comply, believing that a few hints will be of general service.

To make everything as clear as possible, I will commence by  
September.

observing that those who have been propagating from eyes according to the directions given in the number for July, will no doubt find that from the edges of the shields white roots are protruding like little teeth. It will do them no harm to take out a few and examine them, for it never hurts a cutting to take it out at any time that it may be done without injury to the incipient roots. Suppose you find the roots pushing like teeth or claws, your best course is at once to pot them all separately, and shut them up in a frame over a gentle bottom-heat. It may be that the roots have not yet begun to push; but if you examine one, you will certainly see that the edges of the shield are thickened by the process of granulation, which is designated the formation of a "callus." This is a necessary preliminary to the formation of roots, and you may always pot cuttings and eyes of all kinds as soon as the callus is formed, without waiting for roots; indeed, if the potting could always be done at this stage, it would be better than afterwards, for as there would be no roots to injure, there would be none of that double tax put upon the cuttings which happens when in the potting the tender roots get bruised or broken. Some people handle newly-rooted cuttings very roughly, and no wonder if they are found among the correspondents who ask if we can tell them why their plants died a week after they were potted off. In case this is not understood by anybody who has got a lot of eyes from rose trees in progress for making plants, I can give an infallible and visible rule for the right time to pot them off—a rule which cannot be misunderstood, and which can be told in a word. Pot them as soon as the leaves begin to wither, and when you see the eye pushing into growth. The perishing of the leaf is—when the matter is properly managed—the best sign you can have that your labour has not been in vain. It is the same with cuttings—the shedding of the old leaves is a sign you may pot them, for they intend to grow; if they intended to die, probably the leaves would hold on tight to the last.

Now about the potting. It is a nice job for an amateur to be engaged in, and will help to while away a few evening hours most delightfully. Thumb-pots, or small 60's are to be preferred. You want on the potting-board a nice heap of moist compost of a light rich character. What it consists of does not much matter, provided it contains a good proportion of loam; but as recipes are wanted, here is one. Silky yellow loam two parts, hotbed manure rotted to powder one part, leaf-mould one part, silver-sand one part. If these ingredients are well incorporated and chopped over together, and made tolerably fine, the callused eyes will root into it quickly, and grow well from the first. But you may have peat, and be without loam or leaf-mould, in which case your recipe may be—turfy peat two parts, rotten hotbed manure one part. In this compost silver sand will not be wanted. Or it may be that you cannot get peat or silver sand, in which case take some nice friable loam two parts, powdery manure one part, road sand one part. A very important matter in potting such things, is to have sufficient drainage. You want a stone of some kind, on which to break up pots for crocks. Break up a good heap, and let the greater part of it



be as small as peas. In crocking, lay over the hole in the pot a concave potsherd, hollow side downwards. On this place an inch depth of small crocks, and then fill up with compost. Press it gently with the fingers, but do not press it into a pavement. Take the embryo plant in the left hand, and place it in the centre, and with the right hand fill in with the finest of the stuff, or with silver sand, only just so much as will leave a little room for water within the rim of the pot, and leave the pushing bud with the point of its nose peeping out; that is to say, do not cover the bud entirely. Press lightly with the two thumbs, and as fast as they are potted pack them closely together either in a frame or greenhouse, where they are to be slightly shaded until they have actually formed their first leaves, after which they may have all the light possible, and plenty of air besides. They ought to fill the pots with roots in six weeks, and can be shifted to the next size, with the same stuff as before and an inch and a-half of crocks, and in this way they will pass the winter well. At the end of March another shift, and in May plant them out, and your routine of preparative culture is over; you have thenceforward to keep them and make fine bushes of them.

Some of our correspondents have, it appears, neglected to take advantage of the directions given at the proper moment, and are in doubt as to whether there is yet time for acting upon them. To these it may be said that eyes cannot be put in now with much chance of success unless they can have warm greenhouse treatment. There is plenty of time for striking cuttings, but there should be no unnecessary delay.

For those who begin now, cuttings made in the way shown at page 208 of the number for July will be preferable, and they must be dealt with as follows:—Choose shoots of this season's growth, and pot them all separately in thumb-pots in one of the light composts just recommended, and in the potting process thrust each cutting down in the centre of the pot till it touches the crocks. They will make roots sooner if they touch the crocks than if they terminate in the soft soil. Remember that they want water only to keep the leaves fresh. It is the great secret of striking roses never to make the wood wet; if you do it rots, and you think it a very hard matter you cannot raise a few roses. Keep the soil in the pots rather dry; keep the cuttings rather close shut up, but take care to give air for a few minutes daily, and if it is possible turn the lights over daily so as to give them the dry side of the glass at each turn, and regularly refresh the leaves by a skiff from a syringe, or by drawing the hand over a wet brush held near them, or in any other way you please, provided you do not slop the water about, but imitate the effect of dew as nearly as possible. My rule for many years was to pot all the cuttings separately, in the first instance, in three-inch pots, and winter the plants without shifting. This made of it a minimum of labour. But then I never reckoned on losing more than five per cent. of the whole, and it was not a serious matter to see five pots empty when there were ninety-five doing well. But as all beginners are likely to lose fifty per cent., it may

be well to put the cuttings in pretty thick in large pots, and pot them separately when they form a callus. Beware of making them too wet. Keep the leaves fresh, and in every other particular act precisely as I recommend for eyes, and you will in due time have rose bushes of your own producing.

S. H.

## THE FORMATION AND ARRANGEMENT OF SHRUBBERIES.

BY P. GRIEVE,

Ferd Gardener, Culford Hall, Bury St. Edmund's.

*(Read at the Birmingham Congress, 1872.)*



It may possibly be admitted that the principal objects in view in forming belts and clumps of evergreen shrubs or dwarf trees in the immediate vicinity of country mansions and villa residences, are those of separating certain portions of the grounds from others, to conceal objectionable objects, if any such exist, and to afford shelter and seclusion to walks, drives, lawns, and flower gardens; and by the skilful disposal of such belts and clumps the extent of limited ground can, not unfrequently, be apparently increased, and a pleasing diversity given to surfaces which would otherwise be flat and uninteresting. This paper, however, will not be so much an attempt to show how this can be done as to offer a few suggestions as to the selection of material required to form such belts, when their outline and extent have been indicated by the designer. It must be apparent to any one who may have given attention to this subject, that the very important operations of arranging and planting shrubberies are too frequently performed in a somewhat hasty and inconsiderate manner; not only without due regard to the effect likely to be produced, but also as to the dimensions which the various varieties of plants employed are likely to attain. And in too many instances examples may be found in plantations of trees and shrubs where ornamental and valuable specimens are growing in such close proximity to each other that all are more or less seriously suffering from the contact; and the natural reluctance to remove or to destroy either one or other of the overcrowded specimens tends to delay, which ultimately proves fatal to the beauty and graceful outline of all.

It is quite true that by the aid of some of the many excellent transplanting machines, which have of late years been introduced, the rearrangement of trees and shrubs of even large dimensions can, without great difficulty or risk, be effected. But this rearrangement, it must be observed, can only be accomplished by a considerable amount of labour and expense, the necessity for which might in many instances be obviated by the exercise of a reasonable amount

of forethought in the first instance. The portion of ground intended for shrubberies ought always, in the first place, to be efficiently drained, should this be found to be necessary, and should likewise be trenched or deeply dug; and should the soil be of inferior quality, it ought to be enriched by the addition of suitable soils or manure. Very light or sandy soils might be benefited by a liberal application of well-pulverized clay, while heavy soils would be equally improved by the addition of lime, sand, or ashes; and the planting of the shrubs and trees ought to be performed as early as possible during the autumn.

The plants intended to ultimately form the plantation ought to be selected and arranged with the greatest possible care, taking into consideration the size, habit, and general appearance which each individual plant will present when approaching or when arrived at a fully-developed condition; and these ought to be carefully planted at distances seldom less than fifteen or eighteen feet from each other, and even these distances ought to be considerably increased when Conifers or other trees of large growth are introduced.

The spaces between these plants, which, it may be said, are intended to be grown into specimens of their respective varieties, and to ultimately form the clump or belt, as the case may be, can now be filled up as closely as may be desired by the more common varieties of shrubs, with a view to produce an immediate effect, using such sorts as the common Laurel, common Holly, and evergreen Privet. And these can be gradually removed without remorse, as the more valuable varieties are found to require the additional space.

It sometimes happens that aged forest or park trees (which it may be desirable to retain) come within the space to be enclosed as shrubbery, and when this is the case it is unadvisable to plant valuable specimens of shrubs or trees very near to them, as if this be done there is little probability of their succeeding well. But the ground in the vicinity of such trees is better planted thickly with such shrubs as the common Laurel, Holly, Box, or any other varieties of shrubs known to succeed under the drip and shade of large trees.

Coniferous trees attaining large dimensions and of ornamental character are perhaps better adapted to the purpose of forming single specimens upon the lawn, but when shrubberies of considerable depth and extent are being formed, they can be used with great advantage in the more central parts, or at considerable distances from the walks or drives, while the various ornamental shrubs of dwarf and compact habit can be selected for the more marginal positions.

Many of the numerous varieties of deciduous flowering shrubs are exceedingly beautiful, and are well worthy of extensive cultivation, but they ought to be used but sparingly (if at all) in plantations intended to act as screens or blinds. I should even be inclined to go so far as to recommend their total exclusion from such plantations, which ought to be composed entirely of evergreens, of which there exists an infinite variety to select from.

Evergreens and deciduous trees and shrubs harmonize sufficiently well with each other during the summer months, but such is not the case in winter, and it is during the winter months that the warmth and shelter of belts and clumps of evergreens are most required and appreciated, and on that account I would strongly recommend the grouping of deciduous flowering shrubs by themselves.

I should likewise be inclined to recommend the exclusion of the *Rhododendron*, the *Kalmia*, and other American plants, from the shrubbery borders, as they very rarely succeed well when mixed with other shrubs, unless in localities where the natural soil happens to be suitable to this class of plants; and even when this is the case, such plants succeed better, and are vastly more effective, when grouped by themselves.

As has already been said, in forming belts of considerable depth, or large clumps of evergreen trees and shrubs, many of the large-growing varieties of the family of *Coniferæ* may be used with great advantage, more particularly in the central parts; and for this purpose mention may be made of such plants as the *Wellingtonia gigantea*, the *Deodar Cedar*, and the *Cedar of Lebanon*; the *Libocedrus sinensis*, *Abies Douglassi*, *A. morinda*, *A. orientalis*, and many others, including the *Piceas*, or *Silver Fir* tribe, all of which are exceedingly ornamental, and most of them of rapid growth. And the same may be said of the genus *Pinus*, many of which, such as the *Pinus austriaca*, on account of its rapid development and density of habit, are exceedingly valuable wherever shelter and seclusion are desirable.

Altogether, the family of *Coniferæ* furnishes of itself an infinite variety of dwarf-growing trees and shrubs of suitable character, and to which can be added the various kinds of common evergreens, such as *Laurels*, *Hollies* of various sorts, *Phillyreas*, *Alaternus*, *Arbutus*, *Laurustinus*, *Aucubas*, *Buxus*, *Mahonias* or *Berberis*, *Cotoneasters*, and many others. While, as regards the numerous varieties of deciduous flowering shrubs, many of them are so exceedingly beautiful that I would in their case strongly recommend a system of grouping in suitable situations.

The advantages of this method, may, I think, be readily conceived, if we contrast the pleasure and satisfaction likely to be experienced from looking upon a flowering group of *Spiræas*, *Weigelias*, or *Deutzias*, with that of beholding single or individual plants here and there in the mixed shrubbery, possibly suffering from the pressure of other species, or at best taking part in a struggle for existence, affording little real pleasure to the beholder. The genus *Cratægus* may be mentioned as capable of forming a noble, varied, and interesting group of plants in any suitable situation in the pleasure grounds, as would also the *Syringa* or *Lilacs* of various kinds, the *Viburnum opulus*, or *Guelder Rose*, and many other species of deciduous flowering shrubs; and as a deciduous tree of rare beauty, the *Acer negundo variegatum* will doubtless be found to be of great service in producing striking effects, either as single specimens, or in suitable groups, with the advantage of a dark or sombre background.



The various species of *Rhododendron* and other American plants have already been recommended as suitable plants for the purpose of forming clumps or groups in the pleasure grounds; indeed, a garden establishment can hardly be considered as complete without a selection of these beautiful plants—although it may be necessary to state, *en passant*, that there are some unfortunate localities, on the chalk formation, where it is found to be quite impossible to cultivate them successfully, even in prepared or peat soil. But in all localities where they are found to succeed, scarcely anything can be conceived more beautiful than beds or groups of these lovely plants when in full flower, and even the foliage of the evergreen species renders them ornamental at all seasons of the year.

It may also be said with truth that there are few objects more beautiful and interesting during the spring or early summer months than our common cultivated fruit trees; and there really does not appear to be any good reason why the fruit garden should not constitute a necessary portion of the pleasure grounds of every country mansion or villa. What can be more beautiful than the Apple, the Pear, the Plum, and the Cherry tree in full flower? And they are, in fact, exceedingly interesting objects at all seasons. But it rarely happens that they are placed in a position where their beauty can be appreciated and enjoyed. They are too frequently to be found in the vegetable garden, where they are entirely out of place (unless it be in the form of espaliers or cordons), or they may possibly be found in a somewhat neglected and out-of-the-way locality, known as the orchard.

But as an advance or an improvement upon this state of things, might not these useful and ornamental trees be cultivated with more pleasure, and at least equal profit, in a tastefully-designed garden or compartment by themselves, and forming at the same time an essential part of the pleasure grounds? Clumps or groups of varied forms and dimensions could be formed of pyramidal or otherwise trained Apple, Pear, Plum, and Cherry trees, etc., which might be margined by low single cordons of their respective kinds, while single standard trees of various sorts might in suitable situations be allowed to assume their natural habit and dimensions—the whole area to be traversed by winding and comfortable walks, to afford every facility for the examination and enjoyment of the beauty of the various fruits in all stages of their development.

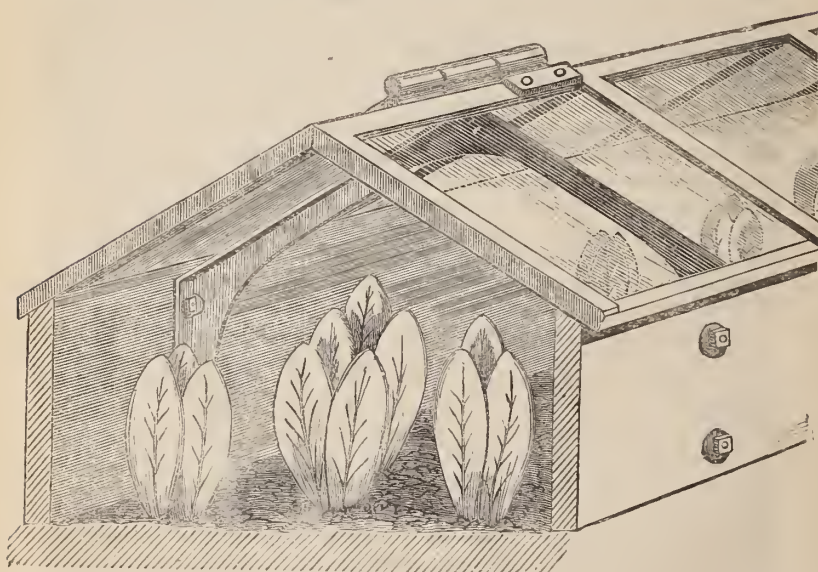
Altogether I am inclined to think that by adopting some system of grouping such as I have endeavoured to describe, and by adhering to an arrangement which would associate the fruit garden with the pleasure grounds in such a manner as to constitute, as it were, a necessary and important portion of the same, and to some extent effect a combination of the *utile* with the *dulce*, we could hardly fail to give additional interest to the surroundings of a country mansion or residence at all seasons of the year.

## BOULTON'S PLANT PRESERVERS.



AT the Exhibition of the Royal Horticultural Society, at Birmingham, there was a very sharp competition for portable structures for the cultivation of such plants, fruits, flowers, and vegetables as may be grown in them, as nearly or quite all the makers of these portable contrivances put in an appearance; but the premier award, a silver medal, was awarded to Messrs. W. G. Boulton and Co., of Norwich, for their "Plant Preservers," a specimen of which is here figured.

These frames, or, as they are designated by the makers, "Universal Portable Plant Preservers," differ from other forms of portable



contrivances at present manufactured, in being made entirely of wood, iron, and glass, and in such a manner that they can be readily taken to pieces, or moved from one part of the garden to the other without having to take them to pieces, or, in the case of the larger sizes, doing more than removing the lights. The plan of construction is so simple, and shown so clearly in the accompanying sketch, that a very few words will suffice to explain the manner in which they are made. The illustration shows a portion of a six-foot length of the frame, four feet in width, with the end removed to admit of an inspection of the internal arrangements. The frames, as will be seen at a glance, are provided with stout wooden sides, held firmly together at each end by means of the cast-iron girders or rafters. The hinges for hanging the lights are on the top of the

girders, and are made in such a manner as to come just above the wood-work when the frame is closed. By this means the lights can be open to any required extent, and, if necessary, can be folded backwards on the one opposite, thus affording the greatest possible facilities for watering, removing, or otherwise attending to the plants. The lights are made in six-foot lengths, of strong deal, and glazed with 21-oz. glass in squares, about twelve inches in width, imbedded in putty, and held in its place with iron sprigs, thus combining lightness with durability. They are made in various widths, ranging from two to six feet, the last-mentioned width being a quite roomy structure suitable for the cultivation of specimen greenhouse plants of a considerable size. The smaller sizes are equally valuable in their way; but the most useful, perhaps, because of their adaptability for a greater number of purposes, are the three and four feet widths. It is, we imagine, hardly necessary for us to say that these "preservers" may be employed most successfully in the protection or cultivation of every fruit, flower, or vegetable that can be grown under glass without the assistance of artificial heat; as ground vineries, or for the cultivation of melons and the summer crops of cucumbers, they are of especial value, whilst for the protection of lettuce and cauliflower plants during the winter they will be found extremely useful. A simple contrivance is attached on each side to every length for the purpose of keeping the lights open when it is desired to ventilate the frame. Considering their substantial character, portability, and the many ways in which they may be employed, we anticipate a very large demand when they become generally known.

## NOTES ON NEW BEDDERS.

BY A HEAD GARDENER.



WE are once more in the midst of the autumn propagating season, a few notes on the new and most valuable bedding plants will no doubt be of considerable service to those who have no opportunity for testing the new kinds as they are introduced to public notice. There has been, as usual, a few of no merit distributed, and which ought to have been destroyed instead of being put into commerce, but several of the newer introductions are quite indispensable, as they surpass in every way older sorts of a similar character and colour. It would occupy too much space to condemn the bad ones, as well as to praise the good ones, for in justice to the raisers it would be necessary to a certain extent, to explain the reasons for condemning them, and these remarks, therefore, will be confined chiefly to pointing out those which are most worthy of attention. I am afraid that many amateurs who possess the means, do not purchase the new bedders so freely as they should do for the sake of their flower garden, but go on growing plants that have been long since super-

seded. They appear to lose sight of the fact that cuttings of the new bedders can be purchased in the autumn at a few nurseries at a very low rate. By the new postal rate such facilities are afforded for the transmission of cuttings of plants through the post that the cost of carriage of cuttings is a mere trifle. By purchasing cuttings the amateur is enabled to secure a stock of new plants for a trifling outlay, and at the same time enjoy all the pleasure attached to the cultivation of his plants, from the earliest stages until they are fully developed. The cuttings are not only cheaper than plants, but the cost of carriage—frequently a very serious item—is practically saved.

Referring to the catalogue of a nurseryman who makes a speciality of supplying cuttings, I find that sixpence only is charged for postage and package of each dozen. The cost is the same for the transmission of rooted cuttings. The latter are perhaps the best for amateurs who are not skilled in propagating plants, especially as there is no great difference in the price. The rooted cuttings are taken from the cutting pots when nicely furnished with roots, and as they are packed in tin boxes and sent by post, they reach the purchaser within a very short time. They suffer but little, if any, check, and if at once potted, and kept close for a short time they soon become established, and able to take their place amongst the general stock. To put the matter in as clear a light as possible, I will observe that the usual price for cuttings is about one-third of that charged for established plants, and for rooted cuttings two-thirds of the price.

Flowering plants, such as Verbenas and Lobelias, which require a liberal amount of moisture and not too much heat, have done extremely well this season, and many beds of these plants have been exceedingly gay this year. No very decided improvement has been made in the race of bedding verbenas by the new introductions. A few are, however, desirable; especially *Basilisk*, brilliant scarlet; *Lavender Queen*, lavender blue; *Lustre*, magenta; *Royalty*, clear crimson; *Violet King*, violet purple, and *Oxonian*, clear blue. These are well worth growing with the best of the older varieties, which may be said to be *Crimson King*, scarlet; *La Grande Boule de Neige*, pure white; and *Purple King*, bluish purple. There has been some grand show flowers added to our lists of late, but it is very seldom that varieties with superbly finished flowers are of much value for the flower garden.

Some of the new varieties of *Lobelia erinus*, of which *Speciosa* is a well-known type, are of surpassing merit. First, we have *Brilliant*, a very neat grower, with deep blue flowers, one of the very best of the blue varieties; and then follows *White Perfection*, which of the two is perhaps the most valuable. The latter well deserves its name, for in habit it is quite equal to the finest form of *Speciosa*, and the flowers are pure white, very large, and freely produced. It quite surpasses all the other white-flowered varieties. It has been in splendid condition in Hyde Park this season, where it is employed extensively in the arrangements by the side of Park Lane. In addition to the above, *Trentham Blue* and *Indigo Blue* should be grown. The pumila section appears to be stationary, as we appear to have nothing to surpass, or, for the matter of that,



equal, *Pumila grandiflora* and *Pumila Celestial Blue*. The varieties belonging to the last-mentioned section are not grown so extensively as they should be; for when planted in rich, friable soil, they make the most effective marginal or divisional lines and small blocks in carpet beds.

Lantanas are not much grown for bedding, yet they make grand beds, and very chaste and effective edgings. There has been no material improvement made, and the only variety requiring attention is *Favourite*, yellow, merging into purplish crimson. For the assistance of those who feel disposed to have a bed or two, I will mention the fact that *Jean Bart*, *Impératrice Eugénie*, *Mons. R. Chauvière*, are three good varieties.

Of *Heliotropiums* little need be said, as *Mrs. Lewington*, *Miss Nightingale*, and *Jersey Beauty* still remain the best in the several shades of colour. In some gardens old coarse-growing varieties are grown, the proprietors being apparently oblivious of the fact that such varieties as mentioned above are in existence.

This has not been a very good season for testing the merits of Zonal Pelargoniums, as they have grown too luxuriantly to bloom well. Few of the new varieties are adapted for bedding, and amateurs cannot do better than adhere to the selections given by Mr. Cannell in the March number. With me Denny's *Wellington*, deep crimson, and Hibberd's *Feast of Roses*, very deep rose-pink, have been exceedingly good. The former produces large trusses of flowers which stand the weather, and the latter small trusses which are produced so freely as to give the bed the appearance of being quite solid with bloom.

With respect to the varieties grown for the beauty of their foliage, very little need be said, for very few of the new varieties are of sufficient merit to justify the amateur in purchasing them at a high price whilst he has so many good old sorts to pick from at a low price. I therefore give the names of a few of the best old varieties. Of the golden zonals the best are *Miss Batters*, *Florence*, *Sophia Dumaresque*, *Victoria Regina*, and *Louisa Smith*. The best silver zonals are *Italia Unita*, *Mrs. John Clutton*, *Excellent*, and *Charming Bride*. The most useful bronze zonals are *Waltham Bronze*, *Mrs. John Lee*, *The Moor*, *Princess of Wales*, and *Rev. Mr. Radclyffe*; and the most desirable golden-leaved varieties are *Crystal Palace Gem*, *Yellow Boy*, *Golden Banner*, *Creed's Seedling*. Of the white-edged varieties preference should be given to *Princess Alexandra*, *May Queen*, *Albion Cliff's* (for bank rows) and *Snowdrop*; and of the creamy-edged varieties, to *Daybreak*, *Flower of the Day*, and *Brilliant*.

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**FUCHSIA FULGENS.**—*Fuchsia fulgens* will grow freely enough in good loam and leaf-mould, with a little sand. The plants should not be overpotted, or you will obtain too much foliage and few blooms. Keep them well watered when growing, and after they have done flowering harden well off. The shoots should not be cut in too hard, as that would encourage the production of too strong-growing shoots. The plants require syringing to keep down thrip and red-spider, in much the same manner as other fuchsias.

September.

## PROPAGATION AND CULTIVATION OF THE PENTSTEMON.



**T**HIS splendid autumn-flowering plant is now in its full beauty, and abundantly repays the little care it has demanded. In no one class of flowers on which hybridizers have bestowed their skill is there a more marked improvement than in this, for their finely-formed and superbly-coloured flowers vie with the gloxinia, and light up the herbaceous border with such splendour as to put to shame all the doleful bewailers over the "antiquated" character of our border flowers. Though this is not the season in which amateurs usually purchase Pentstemons, it is one in which those who have any care about them should be on the alert to make selections while the varieties are in bloom, and also prepare for propagating for next season's supply. This, in fact, is the proper time for a short essay on the Pentstemon, and accordingly I try my hand at one, and not reluctantly, for I prize this flower as one of the very best of the many things that may be grown anywhere with the least imaginable amount of skill. The hybrids are the most valued for garden decoration, and justly so, because of their noble spikes, large flowers, beautiful colours and markings, and the long continuance of their beauty. But there are a few specific forms which the amateur should possess. They are well worth a place in the border.

The garden hybrids are very numerous, and they are all good. I think I may venture to say that in all the trade catalogues there is not one thoroughly bad Pentstemon entered; but of course there are differences amongst them, and some of the newer kinds are remarkable for their bold spikes, finely-formed flowers, and exquisite colours.

To perpetuate the named kinds, the plants must be propagated from cuttings, and it is best to resort to this practice annually, which will allow of the destruction of all the old plants as soon as the bloom is over, and sufficient cuttings have been obtained. To keep old plants entails a certain amount of trouble, for which there is no return, except in the case of valuable varieties, from which it is desirable to obtain as much stock as possible; and in this case it is best to take them up in October, pot them in large pots with plenty of drainage and poor sandy soil, and house them in a cool greenhouse or airy pit. From these, cuttings may be taken to the end of December, and again from the end of February to May; so that if a thousand plants are wanted, and there is but one to begin with, it may be done in time to plant them all in the following May.

As there are some mystical notions abroad as to the multiplication of Pentstemons, and some of the trade aver that they find a difficulty in propagating them, I will give to all mankind in one word a code for their management that cannot be misunderstood. It is this.

Grow them, keep them, and increase them in precisely the same manner as you grow, keep, and increase shrubby calceolarias.

You will observe that as the plants go out of bloom they throw up from the base a multitude of lively green shoots. Take these off, trim away the lowest leaves, and dibble them into pots filled with very sandy stuff of any loamy or peaty kind, and quite poor. Place these pots in frame or pit, shade them from strong sunshine, sprinkle frequently, but never let the soil be otherwise than very moderately moist; if nearly dry, it will be much safer than nearly wet. They will soon hold up their heads, and it will be well to expose them fully to the weather as soon as they are able to bear it, but take care not to let them be drenched with heavy rains. Keep them safe from frost all winter, and keep them also safe from damp, and for the rest you will guess how to manage. In the event of requiring large quantities, make up beds in frames, using gritty leaf-mould, loam, cocoa-nut dust, and sand in about equal proportions, and out of this mixture they will lift with fine roots the next spring. Plants raised in this way may be planted out in April, and all they need is a good loamy soil and a sunny position. It will be a strange thing if they want a single drop of water the whole season, except it may be just after being planted, if the weather happens to be dry.

It is not generally known that Pentstemons may be treated as annuals. They ripen abundance of seeds, and if the seed is sown early in spring, and the plants are pushed on, they will flower finely the same season. To grow them from seed requires only the same care and attention as any other half-hardy annual. A light soil for the seeds, a good hotbed, and the plants to be strong in pots or boxes by the second week in May, and then to be planted out in a sunny position in a mellow and well-manured loam, and a fine bloom is sure to result. Of course a bed of seedlings would produce flowers of all colours, but it would be as pleasing as any mixed bed, and mixed beds are occasionally useful to make a change from the stiff formality of proper bedding effects. Generally speaking, however, Pentstemons come tolerably true from seed, and, therefore, seeds saved from red flowers will, for the most part, produce red flowers, and so on through all the other colours. But some variations are sure to occur, and now and then the cultivator may have a variation in the right direction, and secure varieties that will be valuable additions to the lists of those dignified with names.

It may be worth while to remark that Pentstemons are easy subjects to manipulate for cross-breeding, as the generative organs are large, easily got at, and the pollen is not soon shed. To remove the stamens from a flower which is to be fertilized with the pollen of another, it is best to slit the tube when the flower is about half developed; they may then be cut away with ease. In the course of two days the pollen of the selected flower may be applied. For all practical purposes, insects are the best hybridizers of Pentstemons, and very few of the fine varieties we now possess have been obtained by artificial impregnation, but are the results of selections from large numbers of seedlings.

S. H.

## WILD GRASSES IN BOUQUETS AND VASES.



Nearly all the tables staged for competition in the classes for dinner-table decorations at our principal shows, how much you see wild grasses used in the stands and table bouquets, and, when done so judiciously, what a good effect they make, no matter what colour the flowers may be with which they are mixed. If it be a bright or glaring colour they will tone it down, and if of a delicate shade they will suit even better. Grasses give a light effect when mixed with cut flowers that nothing else will give. I have no doubt, if they could be bought only at Covent Garden or some bouquet shop, there would be a much greater run on them than there is; but, like many other things, because they can be bought cheap, or, better still, had for the trouble of collecting from the hedgerows and fields, people do not use them as much as they otherwise would do. It is like wild flowers; I have seen stands filled with them look much more elegant and chaste than those laden with gorgeous exotics.

Now, in recommending grasses, I do not mean that all kinds may be used; I would say, select the most graceful and lightest looking. As it is only at one season of the year these can be gathered, a good store should be laid in for winter and spring use. The waving and drooping kinds should be so placed, that when they are drying they will be in the same position as when growing, as otherwise they will lose their shapes, which, of course, spoils their effect; and in drying the very light kinds, care should also be taken not to crush their heads together, as they also will lose their shape, and become flat or one-sided. For those who have not any flowers at their command during the winter months, charming little stands can be made up of wild grasses, with rhodanthes and different kinds of everlastings mixed with them to give additional effect. Dried ferns can be placed amongst them, which, if properly dried, retain their fresh green colour.

A. H.

*Upper Norwood.*

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LARGE MARECHAL NIEL ROSE-TREE.—Henry Taylor, Esq., of Fencote, a well-known rosarian, gives the following particulars of a large tree of that beautiful rose *Maréchal Niel* in the nurseries of Mr. Harrison, Darlington. Mr. Taylor says:—"As a little gossip has been circulated in the gardening periodicals concerning this rose, I purpose giving a description of one growing at Mr. Harrison's establishment, The North of England Rose Nursery, at Darlington. The tree is three years old, budded on the *Manetti* stock, but is now growing on both the *Manetti* and its own roots. It covers eight lights, each four feet broad by ten feet long. The house is span-roofed. This spring Mr. Harrison has cut about two thousand roses, and a third crop is now approaching maturity. I stated in a former article on roses in the *Gardener's Magazine* (May 11, page 231) that these blooms found a ready market. In early spring they sell at sixpence each. Two thousand blooms at threepence each would produce £25. As a pecuniary investment growing a good-sized *Maréchal Niel* rose beats growing grapes, and gives much less trouble."



## HINTS ON THE PROPAGATION AND WINTER MANAGEMENT OF BEDDING PLANTS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



N speaking of the propagation and winter management of bedding-plants, it is necessary to divide them into four groups, the first to comprise the zonal and variegated pelargoniums, which may be struck in the open border, or in pots placed in the open; the second such things as verbenas, lobelias, and heliotropiums, which require a close, moist atmosphere; the third the calceolarias, which should always be struck and wintered in a cold frame, for they are very hardy in constitution, although it is difficult to persuade people to the contrary; and the fourth such things as alternantheras, that require a higher temperature than that of the greenhouse for wintering them successfully.

PELARGONIUMS.—First, then, as to the pelargoniums, the cuttings of which are best struck in the open. In the first place, it is necessary to say that rather firm, short-jointed side-shoots should be selected in preference to those which are soft and long-jointed, and secondly, that they may be put in the border or in pots. When pots are employed, fill them with rather light and sandy soil, and place a few pieces of crocks in the bottom, with a covering of some loose material to keep the soil in its place. Insert the cuttings round the outside, regulating the number put in each pot by its size. Thus a three-inch pot will conveniently hold three, a five-inch six, and a six-inch, seven or eight.

It is advantageous to take the cuttings off just below the joint, as the wood is rather firmer than in the internodes, and they are, therefore, less likely to decay at the base. The lower pair of leaves must also be removed close to the stem. In putting them into the smallest sized pot, simply fill it to overflowing with soil; thrust in the cuttings at the proper distances apart, and then take the pot in both hands, with the thumbs pressing on the soil, and a few taps will suffice to shake the soil firm enough to hold them securely in their place. By this method the work can be done in the most expeditious and effectual manner, and a few thousand cuttings can be put in in a surprisingly short space of time. With larger pots it will be necessary to make the soil firm, and then insert the cuttings with the dibble.

As the pots are filled, apply sufficient water to settle the soil and then stand them in the open, where they are to remain until the autumn. To prevent the worms getting into the pots and loosening the soil, a layer of coal-ashes underneath will be necessary. Afterwards very little moisture will be required, and the greatest danger the amateur will have to guard against will be the too liberal use of the water-pot.

When the cuttings are inserted in the open border, they should

be prepared as recommended above, and then inserted in the border at a distance of two or three inches apart each way. They should, of course, be inserted in rows, and the tallies so placed that there will be no confusion when they are taken up and potted for the winter. These will require even less water than those in pots, but of course the soil must not be allowed to become, and remain, dust dry for any considerable period.

They will require occasional attention for the purpose of removing the dead leaves, and in doing this it will be necessary to carefully guard against loosening them.

The cuttings should be lifted and put in three-inch pots, at the rate of three in each, immediately they are furnished with roots. When allowed to remain long after the roots are an inch or so in length, they experience a considerable check, and it may be safely said that it would be better to take them up immediately they are callused than to allow them to remain until they are firmly established in the border.

A dry airy house will be the best position during the winter for bedding pelargoniums of all kinds, whether struck in the border or in pots, and they should have the assistance of sufficient artificial heat to keep out the frost, and dry up any superfluous moisture. A little fire-heat, applied in dull and damp weather, will be of considerable service, provided the ventilators are opened at the same time. The soil requires keeping in a moderately moist condition, and no more, and from November to February it will be better to err on the side of keeping it too dry.

In February they should be potted off singly, and a mixture of sound loam and leaf-mould used. They will then commence to grow vigorously, and require a light position and an abundance of air, when it can be admitted with safety, to keep them dwarf and stocky. Some growers pot them off singly in the autumn, but it is a practice that cannot be commended; for long before the end of May, when they are transferred to the beds, they will have exhausted the nourishment contained in the soil, and the growth comes to a standstill. But by managing them as here advised, a vigorous growth will be secured at the proper time.

The foregoing remarks applied with equal force to the golden, silver, and bronze zonals, as well as to the ordinary variegated varieties; and it may be unhesitatingly asserted that the varieties which are most difficult to strike under glass can be propagated with the greatest ease by acting upon the hints here given.

**VERBENAS, etc.**—The cuttings of plants comprised in this section require the shelter of glass and a close, moist atmosphere to keep them fresh until such times as they are struck. They may be struck in either pots or pans, but, as a rule, five-inch pots will be found the most suitable. They are easy to move about, and if not placed close together all the cuttings will enjoy a fair share of light and air; but in pans those in the centre will be so crowded that they will have but little chance of acquiring any degree of strength. The pots or pans must be provided with sufficient drainage, and should be filled with a light sandy compost, con-

sisting of a mixture of loam, leaf-mould, and sand, with a layer of sand on the top. The soil and sand must be pressed firm, and watered moderately, so that there will be no difficulty in making the cuttings quite firm; and it will be well to bear in mind that, unless the cuttings are made quite firm in the soil a very large percentage will not strike.

In selecting the cuttings take advantage of the points of the healthy shoots, as they strike more quickly and make better plants than those shoots which have become hard. If there is any difficulty in obtaining a sufficiency of shoots of this kind, remove the whole of the flowering shoots from a few of the most promising plants, and in a comparatively short time they will break and yield a plentiful supply of cuttings. Of course plants in the most conspicuous positions in the beds should not be selected for furnishing a supply of cuttings. The cuttings should be prepared as advised for the pelargoniums, and be taken off just under a joint, and the lower pair of leaves removed. When inserted in the pots a liberal sprinkling of water will be necessary, and until they are well furnished with roots, they should have sufficient to keep the sand moderately moist, and the foliage quite fresh. A frame will be the most suitable position for the cuttings, and they should be shaded when necessary, and as much air admitted after the first week as they are able to bear without flagging. When the cuttings are struck remove to a light airy house, and keep them in a progressive state throughout the winter. In February or March they can be potted off separately and gradually hardened off, or they may be placed in a higher temperature to start them into a vigorous growth for the purpose of furnishing a supply of cuttings.

**CALCEOLARIAS.**—To ensure a good stock of these make up a bed of light rich soil in a cold frame, and then dibble in the cuttings in rows three inches apart; prepare the latter in the same manner as advised for calceolarias. The end of September will be early enough to commence the propagation of these plants. A slight shade will be necessary if the weather happens to be bright, as is frequently the case when the cuttings are first put in, and air must be admitted as occasion requires. As calceolarias possess a hardy constitution, a good covering of litter or mats will suffice in frosty weather.

**TENDER BEDDERS**, such as *Alternantheras*, *Coleus*, and *Iresine*, should be struck in heat and wintered in the stove. A few old plants may also be preserved, as they can be kept easily during the winter, and will be useful for furnishing cuttings in the spring.

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## SUCCESSFUL STRAWBERRY CULTURE.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



STRAWBERRIES are so thoroughly appreciated, and so much better in every respect when newly gathered, that every garden should contain a good bed, consisting of the most productive and best-flavoured sorts. To cultivate the strawberry successfully is not a difficult task, provided the soil is neither too light nor too heavy in character; and there is no reason why the amateur should not produce good crops annually, provided, of course, that the flowers are not destroyed by the spring frosts. This mishap is fortunately a comparatively rare occurrence, and few crops can have a greater dependence placed upon them than that of the strawberry.

The main points in strawberry culture are to have a succession of young plants, keeping the beds free from runners and weeds, and a deep holding loam. There is no difficulty in complying with the two first conditions; and it may be said that there are but few soils in which the strawberry will not grow and bear freely, provided it undergoes a proper preparation previous to the beds being formed. The proper preparation consists in dressing heavy soils with sandy loam and light vegetable refuse or road-scrappings; and light soils with clayey loam and good spit manure. The quarters selected for the beds should, as far as practicable, be in an open position, and away from shrubbery borders, or trees likely to afford shelter to thrushes and blackbirds, which, as all growers well know, are extremely fond of ripe fruit, whether they can obtain a supply of food in other ways or not.

In the formation of new plantations, and in laying out the beds, it is very important to bear in mind that it is altogether a mistake to crowd the plants too much. Sufficient space must be afforded for the development of a fair share of foliage. To put them far enough apart to prevent the foliage of one plant touching that of the other, is quite out of the question; but if the beds are laid out as I shall propose, they will have an abundance of room, without there being any waste of space. The distance I would recommend is twenty inches apart from plant to plant, in ten rows, and the same distance from row to row, with an additional ten inches between every second row. A plantation formed in this manner will have the appearance of being laid out in beds, the widest space forming, as it were, the pathway. There is a considerable advantage in this arrangement, especially where it is necessary to layer a lot of runners early, as the broad space will naturally enough be used by those who have to gather the fruit or attend to the runners after they are layered, and there will therefore be no danger of the pots being knocked over, if they are placed in the narrow space.

For soils of an ordinary character planting in early autumn is decidedly preferable, for strong plants put out in August or Sep-



tember will quickly become established, form good crowns, and produce crops the following season. On very heavy or cold soils spring planting has its advantages, unless the earliest runners are layered in pots, and put out as soon as they are well furnished with roots, and supplied with water until they are established.

Whether spring or autumn planting is adopted the soil must be well prepared, by trenching or deep digging and liberal manuring. It is good practice to determine upon the plot to be set apart for the strawberries in the autumn, and trench it up early in the winter, and plant in the spring with early potatoes. When this is done the soil will be in splendid condition for the reception of the plants in July, as will be proved by the rapidity of the progress made. Quarters to be planted this autumn, that were not trenched last winter, should be dug over deeply, and well broken up with a fork; in either case a liberal dressing of manure should be applied previously.

It is, of course, an advantage to have plants in pots, as they receive but a slight check; but as there is a considerable amount of labour in their production, and expensive to purchase, we will confine our attention to those lifted from the open quarters. In selecting the runners it is important to reject all but the strongest, and in lifting and replanting it is equally essential to avoid injuring the roots by careless handling, or exposing them to the atmosphere unnecessarily. If from any cause the roots have been dried up, they should be dipped in a vessel of water before they are put out, and in any case a liberal application of water immediately after planting will be of great assistance.

With respect to general management, I would direct attention to the importance of keeping all runners removed, excepting a fresh stock of plants is required, before young plants are formed on them. When taken early they can be nipped off with the finger and thumb, and a large bed can be attended to in a very short time. Weeds also must be kept down, and clean straw or long litter used for keeping the fruit clean. After the plants have been in bearing a year or two cover the surface between the rows with a layer of partly decayed manure, early in the winter, after the dead foliage has been removed, and the rains will wash the goodness out of the manure, and down to the roots of the plants.

The best varieties for succession in a small garden are undoubtedly comprised in the following selection. Soils and localities exercise a considerable influence on the behaviour of a considerable number of varieties, and some will do well where another will hardly keep alive. The varieties recommended are Amateur, Crimson Queen, Dr. Hogg, Frogmore Late Pine, Koen's Seedling, President, Princess of Wales, Sir Charles Napier, Royalty, Vicountesse Hericart de Thury, and James Veitch. Strawberry fanciers who require a larger selection cannot do better than refer to the selections given by Mr. Gray in the *FLORAL World* for August, 1870.

## STRIKING CUTTINGS IN ROOMS.



ANY of your readers must at this season, like myself, be constantly receiving presents of flowers, containing excellent cuttings, if they only possessed the means of striking them.

May I be allowed once more to trespass upon your valuable space in giving an account of an experiment I have tried in propagating roses, according to the plan suggested in your most interesting article, entitled, "The Multiplication of Roses for the Million," in the July number of the FLORAL WORLD, which promises to be most successful, and is within reach of everybody?

From old habit I always keep any cutting I find as long as it will last, regardless of its shabby appearance. So when your paper appeared, I had ready a good stock of cuttings in water, some prepared for setting, some not. These I now carefully looked over, trimming those that required it, according to your woodcut (p. 210) by way of practice. I found several amongst them that had already formed a good callus.

Must these be thrown away? It seemed very hard, for they belonged to good roses, and were offering to grow. I re-read your paper, hoping to find an idea that would suit my case. But, alas! my eye caught—*Imprimis* (were required), "a good frame with light to fit, placed over a half-spent hotbed; . . . a lot of seed-pans and bell-glasses to fit them, or, better still, a lot of the Plant Covers or Propagating Boxes, manufactured by Mr. Looker, Norbiton Pot-teries, Kingston-on-Thames."

Now these I know by experience are delightful things, but quite out of the reach of many people, or not available at the moment they are needed, and, before they can be procured, the cuttings are dead.

This was just my case. I must use what I had, for not even a large bell-glass was to be bought. In hunting about, I found a glass milkpan, and this gave me an idea. I looked for an earthenware pan of the same size, and placing a 5-inch flower-pot, of which I have previously sealed up the hole in the centre, I filled the space between it and the sides of the pan with stones and lumps of charcoal. On this again I put moss, and then nearly filled the basin with good loam; not having any silver-sand, I sprinkled powdered charcoal on the top of all. I now moistened all the mould well, and filled the flower-pot with water till it ran over the sides. This helps to start the evaporation through the pores of the earthenware. I now lightly stuck in the cuttings, and placed the glass milkpan over all. It stands in a warm bow-window, and a white cut paper round the sides of the pan makes all neat. The cuttings have been left unshaded and untouched. There is plenty of air between the two pans, which do not fit close, and the water in the flower-pot keeps all moist.

Most of the eyes have pushed out, and all but one look well. Those that seem to thrive best were too forward for budding pur-

poses. These are now showing leaf, and have shoots half an inch long. A *glass* will not do inside; it must be something porous. A tumbler was tried with one batch of cuttings, and all died except two. As far as I have tried it, this plan succeeds with most plants. Perhaps some of your readers may be induced to make some experiments of this kind, suited to the wants of indoor gardeners, thereby conferring a great boon to a large class of amateurs, who find the need of a frame an almost insuperable obstacle to all their efforts at raising plants of their own.

MISS J. I. H.-J.

## HOW TO GROW FINE PARSLEY.

BY GEORGE SMITH.



TO produce a supply of parsley is not a difficult matter, yet this herb is not so plentiful at certain times and seasons as it should be. For my own part I experience no difficulty in the matter, and herewith send you a brief description of the system by which the kitchen is liberally supplied with this useful herb. It is exceedingly simple, and may be adopted without any fear of failure. It is as follows:—Some time about the first or second week in September select a poor, and well-drained quarter in the kitchen garden. On this mark out a medium sized bed, and sow with parsley in drills. If the soil is dry when the seed is sown fill the drills with water previously, because if sown in perfectly dry soil, the seed will lay a considerable period before it vegetates.

The young plants will attain a sufficient size to bear exposure to the winter weather without injury. Early in March plant it out nine inches apart in drills, fifteen inches from each other, unless space can be spared for one continuous drill by the side of one of the walks. There will soon be a liberal supply of good quality which will continue throughout the season. By the autumn strong crowns will be produced, and these will be in splendid condition for taking up, for putting in boxes, or covering with one of the forms of ground vineries now in commerce. Too much moisture or imperfect ventilation are alike hurtful to parsley when under glass, therefore, ventilate freely when the weather will permit.

## THE GARDEN GUIDE FOR SEPTEMBER.

\*KITCHEN GARDEN.—This is a time for earnest work in every department. Make a general clearance of the ground wherever there are vacant spaces, and ridge up all plots not to be planted on during winter. Get a waste corner clear for heaping up manures and composts, where they can be turned over during frosts, and if convenient empty the muck-pit, and cover the rotted stuff with a layer of soil to throw off rain; the whole to be turned two or three

September.

times before using it in spring. In preparing for next year's crops, trench over first the ground intended for root crops next season, and choose for potatoes, carrots, parsnips, and beet, plots that have been well manured this year. If the soil allows of deep digging, fork over the second spit, and if it is of a friable and fertile nature, bring it to the top, so as to turn the whole soil over eighteen inches or two feet deep. Plant out the August-sown cabbage; leave the weakest in the seed-bed for future planting. Plant out lettuce in a warm situation; take up potatoes, carrots, beets, and parsnips; earth up celery. Use the fork, spade, and hoe as much as possible to keep all spots clean, and destroy the large crop of weeds that the autumn rains will bring up. Lay cabbages and broccolis that are forward with their heads to the north. Cauliflower plants to be transplanted into frames, or under hand-glasses. In cold and wet districts, it is best to pot them to winter them in frames, to be turned out into beds of rich soil in spring. In undrained soils, it is a good plan to cut a few channels among standing crops, to enable the heavy rains to run off more quickly to an outlet.

**FRUIT GARDEN.**—Crops of apples and pears to be gathered now as they ripen, always selecting a dry sunny day for the purpose, if possible; and, as they are so very scarce this year, be careful to preserve them from bruises. Peaches and nectarines must be looked to as soon as the last fruit is gathered; if any are infested with red spider, dust them liberally with powdered sulphur early in the morning before the dew is off the leaves, or else syringe them well before the operation, so that the powder may adhere.

**FLOWER GARDEN.**—Let Chrysanthemums be securely staked; train out plants in pots, and make them neat and tidy for blooming; give plenty of water. When required to take the place of bedding plants, get them into their places as soon as the beds are empty, and lift carefully with good balls. Chrysanthemums in the borders should be looked over without delay, to see that they are sufficiently staked, for heavy rains and winds play terrible havoc with them when they are not well supported, owing to the profusion and weight of their blooms. Choice and delicate sorts are best flowered in pots under glass, and for this purpose they ought to have been potted one or two months ago, and shifted as required, and trained out so as to give effect to their beauty when in bloom. The bulbs to be planted this month are Hyacinths, Crocuses, Scillas, Crown Imperials, Liliums, Irises, Jonquils, Daffodils, and Early Tulips. Next month is soon enough for late Tulips, and Anemones and Ranunculuses are best kept out of the ground till February, except in places where autumn planting has been proved to answer for them, in which case it is preferable. Herbaceous spring flowering plants may also be got into the borders, to bloom at the same time as the bulbs—such as Wallflowers, Primulas, Polyanthus, Arabis, Alyssum, Aubretia purpurea, Pansies, Dielytras, Iberis, etc. Get all plants of questionable hardiness, and any that are liable to suffer from wet or the attacks of snails, under cover. Choice alpine are more easy of preservation, if potted and put in frames. Auriculas, choice Pansies, Carnations, Pentstemons, Brompton and



Intermediate Stocks, Myrtles, and even Hollyhocks, if the situation is a damp one, must go to similar quarters for the winter, and have plenty of air in mild weather. Remove decayed leaves wherever they occur, to prevent the formation of moulds about growing plants.

**GREENHOUSE.**—House at once whatever is to be wintered under glass. Remove the shading, give plenty of air, and whenever green fly or thrips appear, resort to effectual methods at once, and much future annoyance will be saved. Plants that are to bloom during the winter should have the best place as to warmth. Give plenty of air, day and night, and remove the shading, so as to let in all the sunshine that can be had. Avoid making up fires; but when it becomes necessary to do so, make a brisk fire so as to dry the house, and promote a current of air; otherwise, push nothing into growth more than may be needful to insure vigorous health and plenty of stamina. Chrysanthemums will now keep the house gay for awhile, and as they go off, Fuchsias and Geraniums from summer cuttings may be got into bloom by giving the plants good places and shelter from draughts. If mildew appears, use flowers of sulphur; for green-fly, tobacco smoke. If aphides get possession of the tender crowns of Cinerarias and fairy Roses, and smoke fails to dislodge them, turn the plants upside down into weak tobacco-water, and then lay them on their sides, and syringe them well with soft tepid water. Hard-wooded plants must be kept well-aired, in full sunshine, to ripen the wood, and give them strength to pass the winter in an ordinary greenhouse temperature. Heaths, Epacrises, Pimelias, etc., to have free ventilation, and the rank shoots pinched in, to preserve uniformity of growth. Orchid house to be shaded as little as possible, so that the pseudo bulbs and strong healthy shoots may be assisted in ripening off by the influence of the sun; the process to be perfected by keeping up a genial atmosphere, ranging from 70° to 80°, with abundance of air in favourable weather. Give plenty of water to such as are growing freely, but very sparingly to those which are now rapidly approaching their season of rest. Cattleyas, Lælias, Odontoglossum grande, and Lycaste Skinneri may be kept rather cool, with an occasional slight syringing.

### NEW BOOKS.



THE garden of Alfred Smee, Esq., F.R.S., has been for many years past powerfully attractive to a select, but rather large, circle of the cultivators of taste and science. As a garden, it may be described as cyclopædic, for it contains a bit of everything, and some very large bits of some few distinctive departments of horticultural practice. Situated on a branch of the river Wandle, in the immediate vicinity of Beddington Park, Surrey, it has the advantage of a mild climate, romantic surroundings, good fishing—the river here being crowded with trout—and a number of bright streamlets, that carry music

and moisture through the grounds, to increase its enjoyments and capabilities. Mr. Smee has but one serious disadvantage to contend against, and that is to be found in the shallowness and poorness of the soil of his garden. This has not greatly interfered with his development of its several distinctive features, nor, indeed, should we suppose, from what we know of Mr. Smee, as a man whose personal energy is equal to his scientific attainments, would any ordinary difficulty stand in his way if he really meant to make a garden. In our own occasional participation in the entertainments generously and with admirable taste provided by Mr. and Mrs. Smee in this delightful garden, we have been no less surprised at the variety of scenes presented than by the extensive range of subjects that have been pressed into the service to illustrate the possibilities of gardening in this sub-arctic climate. Here are roseries, ferneries, alpineries, extensive collections of miscellaneous herbaceous plants, very complete collections of apples and pears, and plenty of all other sorts of fruits, a fair assortment of all the hardy succulents, and whatever else amongst hardy subjects could be considered worthy of a place in a garden. The glass is not of great extent, but it comprises a capital orchard house, and a fernery which may be characterized as unique. By this time, perhaps, the reader is beginning to wonder why these remarks should appear under the head of "New Books." The reason is that Mr. Smee has added to the list of his many valuable works one entitled, "My Garden" (Bell and Daldy), the object of which is to describe the paradise on the Wandle, and suggest the means by which those who would pursue the art of horticulture in a similar comprehensive manner may secure the best prospect of success. "My Garden" is a handsome and heavy guinea volume, superbly printed, agreeably written, and profusely and elaborately illustrated. It is the most sumptuous book of its class that has appeared for many a day, and it claims especial attention and respect because of its originality, and the fact that the author describes in it *his own garden*—a very different affair to the system of sweeping other people's gardens that some of our horticultural writers follow.—The next book on our list may be disposed of in a few words. Mr. Rivers' "Rose Amateur's Guide" (Longmans) has reached a thirteenth edition, sufficient proof of the estimation in which it is held by the public.—Those who are banqueting on ozone, iodine, and other aqueous products of the seashore, may be pleased to hear of the publication of "The Seaweed Collector," by Shirley Hibberd (Groombridge and Sons), the object of which is to aid in the identification of species by the seaweed collector, and assist him or her in preparing and mounting seaweeds for botanical and ornamental purposes. As this is the first small and cheap work on the British algæ, it may be proper to state that it comprises descriptions of all known genera and species of both marine and fresh-water algæ, and contains in addition a complete descriptive list of the British sponges. The plates, eight in number, present figures of sixty-four species, and there are, besides, numerous woodcuts.—"The Book of Job" newly translated by A. Elzas (Trübner and Co.) deserves the careful attention

of all critical readers of the Old Testament. Numerous as translations of Job have become, this by Mr. Elzas is by no means superfluous, and its value is enhanced by the adoption of a better arrangement of the text than that of the authorized version, which is both inaccurate and confusing, though perhaps unequalled for power and beauty.

## GLIMPSES OF MR. SMEE'S GARDEN.

(From "*My Garden*," by Mr. ALFRED SMEE, F.R.S.—*Bell & Daldy, York Street, Covent Garden.*)

### THE FERN GLEN.

The fern glen is traversed by a larger brook, into which flow one little brook which runs through the fernery, and another which enters it from an opposite direction; it is crossed by stepping-stones; and a path in ever-varying curves, and at an ever-varying level, passes through the glen, emerging over the little brook by other stepping-stones, in a rosary by the side of the lake.



GROUND PLAN OF FERN GLEN.

Under a large willow is arranged a bower for shade from the mid-day sun, where nightingales, sedge-warblers, and wrens delight to dwell, and the babbling brook runs every hour of the day, and all the year round, making music of its own to soothe the nervous system after the excitement of an overgrown city. The lower branches of the willow tree are turned down, and over them are trained roses, honeysuckle, and clematis, to cover the bower.

"Quite overcanopied with lush woodbine,  
With sweet musk-roses and with eglantine."—SHAKESPEARE.

It is not possible for the writer to describe the fern glen by words, nor is it possible for the artist to delineate it with his pencil. It has been designed to embarrass the eye and bewilder the mind; and so well has it fulfilled this end, that visitors have observed that it was a spot to be pictured by a fanciful imagination in their dreams, but not actually to exist in the reality of nature. It forms many pictures in various directions from the same spot, and Mr. Robertson has made one representation looking towards the bower and a second from the stepping-stones, at the end of the glen, looking backwards through a shady vista to its centre which is so contrived that it is lit up by the sun:

"Sunshine in a shady place."—SPENSER.



The brook falls into the backwater below the overfall, and trout delight to visit it, and when disturbed to rush back to a place of shelter under the overfall. They may be watched for hours selecting their food as it passes by. The stones of the brooks are covered with insects, diatomes, and freshwater limpets. . . .



FERN GLEN, AND FERN DOWER, IN MR. ALFRED SMEE'S GARDEN.

The land, as well as the water of my fern glen, is well furnished. As we enter it we see gigantic osmundas rearing their stiff and majestic forms; enormous lady ferns gracefully showing their flowing feathery forms, with the noble broad ferns expanding their curved fronds to view. Every stump glistens with the golden-spored common polypody, and near every stone the triangular oak fern shows its fronds. Turning round, another view discloses alpine polypody, marsh fern, beech fern, and oak fern.



## HORTICULTURAL AFFAIRS.



**ROYAL HORTICULTURAL SOCIETY.**—The most interesting and attractive features of the meeting held on August 7 were the grand display of herbaceous Phloxes in pots, produced by Messrs. Downie, Laird, and Laing, Stanstead Park Nurseries, Forest Hill, S.E., and the collections of golden and silver zonal Pelargoniums, contributed by the leading growers of these plants. Prizes were offered for the best zonal Pelargonium, the best bronze Zonal, etc., but the competition was very poor, the large-flowered zonals being unrepresented. The Phloxes exhibited were large specimens, with from three to eight spikes each, and, as they were tastefully grouped, presented a very attractive appearance. The best and most distinct of the dark varieties exhibited were *Aurore Boréale*, *Norma*, *Mons. H. Low*, *Duke of Sutherland*, *Mons. Rouillard*, *A. J. Barron*, *J. K. Lord*, *Mons. Conrad*, *H. M. Simons*, *Countess of Eglington*, *Lothair*, *William Austin*, and *Lady Hulse*. The best of the light-flowered varieties were undoubtedly *Comtesse de Turenne*, *Lilacina*, *La Candeur*, *Bridesmaid*, *Madame Billy*, *Madame Barellet*, *Madame Damage*, *Czarina*, dwarf white, and *Queen of the Whites*, large pure white. The first prize for the best Golden Zonal was awarded to Mr. Pestridge for *Sir Robert Napier*, exceedingly well-coloured, and the second to Messrs. E. G. Henderson and Sons to *Peter Grieve*. The first prize for a Silver Zonal was awarded to Messrs. Downie, Laird, and Laing for *Mrs. Laing*, a magnificent variety, which at a previous meeting had a first-class certificate conferred upon it; the second prize to Mr. Turner for *Mrs. Rousby*, and the third to Mr. Pestridge for *Blushing Bride*, a distinct variety, with pale blush flowers. The last-mentioned exhibitor also carried off the first prize for a Gold-leaf variety with *Golden Banner*, a free grower, with pale pink flowers. The first prize for a Nosegay variety was awarded to Mr. Turner, who exhibited *Mrs. Quilter*, a very distinct and beautiful variety with rose-pink flowers, and a similar reward was granted to Mr. Pestridge in the class for a double-flowering Pelargonium, for *Victor Lemoine*. In the last-mentioned class, Messrs. Downie, Laird, and Laing had *McLeod*, a showy variety, with large trusses of brilliant scarlet flowers. For a Bronze Zonal the last-mentioned exhibitors were first with *W. E. Gumbleton*, a distinct and richly-coloured variety. At the meeting held on the 21st of August, Messrs. Kelway and others exhibited Gladioli largely, and produced a magnificent display of these showy flowers.

**METROPOLITAN FLORAL SOCIETY.**—This society held its annual exhibition at the Crystal Palace on the 28th and 29th ult. Dahlias, Hollyhocks, and Gladioli were shown in splendid condition. Of the last-mentioned flowers, Messrs. Kelsey, of Langport, Somerset, exhibited a stand of 500 spikes, in addition to those with which they succeeded in winning the lion's share of the prizes. There was also a fair display of fruit.

**THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION AT BIRMINGHAM.**—The late exhibition of the Royal Horticultural Society, at the Lower Grounds, Aston, was financially a great success, £2,476 being taken at the gates: namely, £429 on Tuesday and Wednesday; £900 on Thursday; £561 on Friday; and £586 on Saturday. The sale of tickets will, it is estimated, be found to have realized a total of £2,500; and if to these sums be added the amount (£1,038) subscribed for the Special Prize Fund, it will be seen that about £6,000 has been raised on the occasion of the visit of the Royal Horticultural Society—a sum probably unsurpassed in the history of horticultural shows. At a recent general meeting of the Royal Horticultural Society Mr. Badger, the Hon. Sec. of the Local Committee, was unanimously elected a forty-guinea honorary Fellow of the Society in acknowledgment of his services in connection with the late exhibition. It was stated by the chairman, that much of the success was due to the able manner in which Mr. Badger had performed his duties as honorary secretary.

**GIGANTIC FUCHSIAS OUT OF DOORS.**—The Knight of Kerry writes as follows to the *Field*, from Valentia, Ireland:—"I live in a stormy climate on the edge of the ocean (which, however, I do not admit to be 'melancholy'), and although my garden is surrounded with a semi-circular wall of some 11 feet, I need interior shelter, and this is altogether provided by Hedges of the *Fuchsia Riccaroni*

which are made by branches cut or broken into bits of any size you please, and stuck into the ground close together in a line. This affords very fair shelter the second year, and from that time forward the only difficulty is to keep your hedge within bounds. The beauty of these hedges at this time of year is extraordinary, and they are so self-sheltering, and our climate is so mild in winter, that they hold the leaf for a very great proportion of the year. As to size, I have one tree of Riccartoni, planted in my flower garden in the autumn of 1854, on which no care has been bestowed. It would have been much larger than it is now if it had not been for some years cut back at one side from a gravel walk. For the last five years I have let it have its own way, and allowed it to overrun gravel walks and ribbon borders, and each year have had its measure carefully taken and recorded by witnesses. In 1870 its circumference, measured with a line round the extreme tips of the branches, was 107 feet 7 inches; last year it reached 115 feet; and I venture to say that this year it will considerably exceed 120 feet. I do not think it is more than 13 or 14 feet high. We have many much taller-growing among trees in sheltered situations. In a year or two it will reach the main walk of my garden, which cannot be allowed to be closed; so I propose to arch over the walk with a trellis, over which I expect the Fuchsia will gradually grow, leaving a passage clear underneath. After that it will meet nothing to check it till some few yards further on it will reach a low cliff, which forms the shore of the harbour, and then I must leave it to settle its 'Alabama question' with the ocean aforesaid."

**POISONED BY HEMLOCK.**—The *Manchester Guardian* relates that on Sunday, after morning service at the workhouse, at Chester, the schoolmaster took the boys for a walk on the Roodee. They were left alone for a short time, and one, named George Dobson, proposed to the others that they should gather wild celery, as he knew a place where it grew. The boys went to the side of the river Dee, and gathered a quantity of roots of wild hemlock, with which they filled their pockets, and several ate of it. On going back to the workhouse Dobson and Albert Kinsey were seized with convulsions, which were regarded as fits at first, as the boys were subject to them. Another boy, George Clark, began to vomit, and Miss Aldis, the master's daughter, learning that they had eaten something, sent for the house surgeon, Mr. Brittain; but tetanus having set in, Dobson and Kinsey died. The others recovered after the use of emetics.

**CATERPILLARS AND CAULIFLOWERS.**—During a recent excursion near the well-known town of Meaux, I observed in a bed of cauliflowers several rows of elder branches, planted about three feet from each other, and still retaining their faded leaves. On making inquiry as to the use and purpose of these, the owner replied, "Some years since, one of my neighbours had several rows of cauliflowers planted near a hedge of young elders, and further on—in the same field and on the same day—he had planted another lot. These last, which were as carefully attended to as the others, and from which the caterpillars were constantly picked, were very much injured by them, and the crop was scanty, and, from its wretched appearance, hardly fit to offer for sale. The most careful picking could not dislodge the caterpillars from the hearts of the plants. On the other hand, the few rows which had been planted near the elder hedge were perfectly uninjured—not a caterpillar had touched them. The explanation of this curious fact is that the butterflies preferred laying their eggs on the leaves of the elders, which were completely devoured by their caterpillars. Ever since that time, the people of this neighbourhood stick branches of young elders among their cauliflowers, and, later on, when the caterpillars on these have reached a certain stage of growth, some cool morning before sunrise they pluck up the elder branches, throw them in a heap, which they cover with straw or dry grass, and set them on fire. As the cauliflowers are not yet fully grown, fresh elder branches are placed amongst them." As it is natural to conclude that other cruciferous plants might be protected from caterpillars in this way, a supply of elder branches will be a desideratum. This might be supplied by planting a piece of waste ground with elder, at a distance of a yard apart, heading them down close to the ground like osiers. The result would largely repay the trouble in the saving of time which is lost in caterpillar picking, a process which cannot, moreover, always be relied upon, from the difficulty of performing the operation thoroughly and efficiently.—*Correspondent of Revue Horticole.*

## TO CORRESPONDENTS.

**PURPLE BEECH.**—*A Lady Subscriber.*—The seedling plants which you have been so fortunate to obtain, could not be in a better position than in the kitchen garden. We should advise you to allow them to remain in their present positions for the present. We shall be interested in knowing whether they retain their colour next season.

**VARIEGATED PRIMROSE.**—*C. B., Godalming.*—The variegated-leaved primrose, of which we have received leaves, is quite new and showy. It is, however, rather coarse. It would be a good plan to exhibit it at South Kensington, when in good condition, next year.

*J. H., Littleton, Ireland,* writes:—I have a bed of fine seakale plants grown from seed this year. Will they require any (and what) protection during the winter, previous to planting out next spring? Have any of your professional or amateur correspondents ever noticed either of the following unusual occurrences in vegetable growth? I had both this year in my own garden, having never even heard of them before:—1st. In a bed of single late tulips I had *two* well-grown and fully-developed flowers from one stem; the stem grew single for nearly a foot in height, then it parted in two with a full-blown flower on each. This I noticed in two cases in the same bed. 2nd. In a drill of peas, "Carter's Earliest," I had a few blossoms, which each contained two perfect styles and sets of anthers; these in time each produced *two* perfectly well-filled pods, each growing from the same calyx. [If the plants are crowded in the seed-bed, they should be taken up and planted in rows eighteen inches apart. A distance of twelve inches from plant to plant in the rows will suffice for the full development of each. The circumstances mentioned are unusual.]

**HARDY FERNS.**—In your interesting book, "The Fern Garden," you say that there are many localities in the neighbourhood of London rich in ferns, but, as they are "pretty well known," you do not enumerate them. Unfortunately they are not known to me, and I am very anxious to enlarge the out-door fernery I began last year; and I am not able to go so far as the fern's "home paradise" in Devon and Cornwall. I shall feel particularly obliged to you if you will kindly tell me of some places within an easy distance of London, where I can increase my stock. I am already indebted to you greatly, for it was entirely through your book that I first thought of beginning a fernery, and gained the necessary information.—*Dora B. Reece, Regent's Park.* [One of the best localities for the collection of ferns for planting in an outdoor fernery is about Woking, as several of the finest hardy species can be obtained in any quantity by the side of the road leading from Woking Station and Knap Hill. Some species can also be found in Epping Forest. Some of the localities alluded to are in enclosed grounds, and therefore no useful purpose would be served in mentioning them.]

**PROPAGATING HARDY SHRUBS.**—*M. A. N.*—The side shoots of the Golden Euonymus should be taken off with a heel, and then inserted in rows in sandy soil on a warm border. A trench should be opened out, and the cuttings then laid in, and the soil packed about them. The cuttings should be buried about half their depth. The variegated maple is usually inarched on the green-leaved Acer negundo. Early in the winter the stocks are planted round the tree it is desired to increase, in such a manner that the tops can be brought on a level with the shoots of the tree. Here they remain until the spring, and then a slice of bark is taken off on one side of the stock, and a similar slice from one of the shoots; the two wounds are then placed together, and secured firmly by means of stout bast, which is at once covered with clay. When the union is complete, the shoot or scion can be separated from the tree by cutting it through just below the junction. The length of the stocks must be determined by the purpose for which the trees are required. In the autumn they should be taken up, and planted in nursery quarters.

**CHERRY TREES AND GRAPE VINES.**—I have six cherry trees, dwarf, good, strong, healthy-looking trees in a good, open situation, but they never bear fruit. Can you give me a reason also what I had better do at them? I have also five black Hamburgh vines in pots, some six years old, in excellent condition apparently, but they do not bear, or at least have only done so once since I have had them. Can



you tell me what to do with them ? if so, shall esteem it a favour.—*George Hunt, Midland House, Derby.* [The trees are in all probability growing too strong to produce flower-buds. Try root-pruning this autumn to check their luxuriance. Grape vines in pots seldom produce more than one good crop. We should advise you to destroy them, and commence again with young canes.]

**SOWING SEED OF LOBELIA SPECIOSA.**—*Amateur.*—All you have to do is to save seed from the best plants ; those with the brightest flowers and the most compact habit are the best. Cut off the flower-spikes and lay them on pieces of newspaper in the greenhouse to dry. After the seed is thoroughly ripe, sow in pans filled with any light sandy soil ; when large enough to handle, prick off into shallow boxes about an inch apart ; in February pot off into three-inch pots. By this simple method of procedure you will have grand plants for turning out in May, far better than you would have if you were to leave the sowing until spring.

**SNAILS AND FERNS.**—*Lady Gardener.*—The fronds have been eaten by slugs or snails, probably introduced in the soil or with the ferns when the case was planted. We have frequently had such things happen, but have always found it an easy matter to trap the vermin. We have placed scraps of fresh lettuce-leaf under pieces of tile, and have sometimes used buttered cabbage-leaves, which they are very fond of.

**FUCHSIA-BUDS DROPPING.**—*W. R. H., York.*—The plants have quite exhausted the soil in which they are growing. Shift the young and middling-sized plants you mention at once into good soil, consisting of fibrous loam, leaf-mould, rotten dung, and silver sand ; after a few weeks' growth they will bloom finely through the latter end of the autumn. Try a little guano-water, mixed at the rate of half an ounce to the gallon, on the old plants. If they are too far gone, and it fails to have a salutary effect, set them out of doors in a shady position to ripen their wood. Those grown out of shape, and not wanted for propagating, throw away at once, and do not bother yourself with them.

**YUCCA ALBOFOLIA VARIEGATA.**—*W. Smith.*—All the Yuccas require a soil composed of rich loam, a little old, dry, chippy dung, leaf-mould, and a good admixture of broken crocks, lumpy charcoal, and brick rubbish. The pots should be well drained with large crocks at the bottom, then a layer of smaller ones, and then some of the roughest of the soil. They are propagated by suckers, which may be taken off now if of moderate size, and struck in sandy peat and loam with bottom heat. They like sun, and during the summer plenty of water ; in winter, very little, or none at all. Broken leaves may be cut off close with a sharp knife, but the less the plants are cut or injured the better. Do not shift to larger pots unless the pots are already full of roots, but if they really require more room, shift at once without breaking the ball, and give plenty of water and shade for a week. When growing, an occasional sponging of the leaves with soft tepid water will do them good, but they must not be exposed to sun while the foliage is wet.

**SHOWY GREENHOUSE CLIMBERS.**—*Lady Gardener.*—Few plants do better as greenhouse climbers than the Clematis. Any of the beautiful hybrids now in commerce will suit you. *C. lanuginosa pallida* is grand for indoors ; and, in addition to the beautiful hybrids, you cannot do better than add the beautiful double-flowering kind, lately introduced to this country. You might also grow a few good specimens of Clematis, in large pots out of doors, and bring them into the conservatory as they begin to flower. You will then have no cause to complain of want of flowers indoors through the end of the summer and beginning of autumn. Grow in rich open soil, and train on a trellis, the same as you would any of the greenhouse climbing plants when grown in pots.

**CULTURE OF GREENHOUSE DAPHNES.**—*Beta.*—These fragrant flowers require the protection of a greenhouse through the autumn, winter, and spring. In the summer they should be placed out of doors along with the other hard-wooded plants. To keep the plants bushy, pinch or cut them back directly they have done flowering, and let them make the new growth with plenty of light and air, to prevent its being weak and spindly. Unless the wood is strong and stocky, very few flowers can be expected. The plants will grow freely in good fibry loam and peat, two parts of the latter to one of the former, mixed with a liberal proportion of silver-sand. The pots must be well drained, and the plants have plenty of water when growing in the spring. During the remaining part of the time, the soil must have no more water than is sufficient to keep it in a nice moist state, for it should be neither too wet nor too dry.







LONICERA (SEMPERVIRENS) PLANTIER

## HARDY FLOWERING SHRUBS.

(With Coloured Plate of *Lonicera sempervirens plantierensis*.)



It cannot be said that Hardy Flowering Shrubs are either few in number or unappreciated in English gardens. But as improvement is always possible, so it may be that, at this time of buying and planting trees, a few observations of a practical kind on this particular subject may prove useful.

As to the general case, it may be safely said that the traditional Lilac, valuable alike for its early leaves and its brief but beautiful and fragrant bloom, usually usurps a larger space than it is entitled to in the entrance-court and the front line of the shrubbery. In the way of flowering shrubs, it is scarcely possible to have too much variety. At the same time, it must not be forgotten that certain kinds that are particularly adapted for massing should be so employed in quantities where circumstances favour the development of distinct and noble features. Rhododendrons and Azaleas are the grandest of all flowering shrubs; but, as they are peculiar in their requirements, they are not adapted for universal purposes, and, for some kinds of gardens, and some parts of almost every garden, are actually too showy and too stiff in outline to be planted at all.

One of the principal advantages of a good selection of hardy flowering shrubs is the abundance and variety of flowers they present in the early months of the year, making the garden gay in days when the bedding plants are still under cover, though the sun may shine brightly, and an out-door ramble may be not only possible, but delightful and healthful. Long before the lilacs show their bonny clusters of short-lived flowers, the naked flowering Jasmine, and the very green Forsythia, present their bright garlands of gay yellow flowers; and, long after the orchard-trees have bloomed, and when many fruits are ripening, the Spiræas "take up the pleasing tale," and offer for our delight their brave bunches of foamy white, rosy pink, and purple-red flowers. Nor should we omit mention of the immense variety of leafage we obtain for the front of the shrubbery by securing good collections of flowering shrubs. All possible shades of green, from the yellowish *Ribes aureum* to the bluish *Spiræa Reevesiana*, and the purplish Dogwood, may be found amongst them; and not a few of the deciduous kinds die off in autumn in colours that far surpass in breadth and richness those of their spring and summer flowers.

Another consideration of no small importance is that, although the very general and somewhat indefinite term, "flowering shrubs," embraces members of genera far removed, both in botanical characters and geographical distribution, yet it suggests a class of useful plants that require no special peculiarities of soil or climate, provided, of course, we exclude for separate consideration the ericaceous section, which certainly must be accommodated with a peaty, or sandy, or peculiarly mellow loamy soil, to give satisfaction.

In the following notes, those subjects are recommended which are least particular in their requirements, and the most generally useful as "things of beauty" in their several seasons of flowering. Many good things are of necessity omitted, but the list comprises a selection the merit of which admits of no question; whilst among the subjects selected there are many that as yet are but little known. Let us begin with the EVERGREENS, as these are doubly useful, so far as they come within the class of "flowering shrubs," as the term will be generally understood.

*Abutilon vitifolium*, with white flowers and handsome vine-shaped leaves, is a fine climber for wall, verandah, or summer-house, in a particularly good climate. In the south and west of England it is quite hardy. In the climate of London it requires protection.

*Arbutus Crooni*, *A. magnifica*, and *A. photinifolia*, are three superb strawberry-trees for a good climate, or for sheltered situations in the midland districts. In all the less windy parts of the south coast, the *Arbutus* grows finely, and bears a prodigious quantity of fruit; but, in the milder and moister parts of Ireland it contributes in a remarkable degree to the characteristics of the landscape.

*Berberis Darwini* is the most elegant and flowery of its race. It will grow in any good soil, but thrives best in peat.

*Buddlæa globosa* is well adapted for a half-wild place, but is not good enough for a commanding position in the garden.

*Cistus ladanifera* is a charming white-flowering evergreen, which loves a dry soil and plenty of sunshine.

*Colletia bictoniensis* is a curiosity, the leaves being like castings in grey metal, presenting spikes enough to terrify the boldest, while the flowers are pure white, and so exquisitely scented, that the nose discovers them at the distance of a furlong. A dry soil and a warm climate are required for this dashing but dangerous subject.

*Desfontania spinosa* is perhaps the grandest of all flowering shrubs for a peat soil in the extreme west of England, but is too tender for the climate of London.

*Garrya elliptica* is a bold-habited shrub, rather gaunt in its way of spreading, but remarkably beautiful in winter, when its long tassels of inflorescence appear. Thoroughly hardy.

*Hypericum calycinum* makes a fine front line flowering shrub to plant under trees.

*Ligustrum Japonicum* and *L. lucidum* are handsome, fast-growing privets, that flower superbly in the summer. They both bear partial shade without harm.

*Lonicera sempervirens* (the subject of the Coloured Plate), is a free-growing and remarkably showy shrub—equal, in fact, to an azalea in the splendid orange-yellow of its great clusters of flowers.

*Raphiolepis ovata* presents beautiful dark-green leaves and white flowers, the latter being succeeded by purple berries. This is a fine subject.

*Skimmia Japonica* is well known for its bright red berries; but is worth a place here for its quiet but fragrant white flowers.



It will grow in the deepest shade, which renders it particularly valuable.

*Spartium junceum*, the Spanish Broom, and *S. multiflorum*, the White Portugal Broom, are well known. They are only adapted for large gardens, and are more especially valuable in public gardens, where an abundance of flowers is of more importance than any particular elegance of character.

*Ulex Europæa*, *fl. pl.*, the Double Furze, is altogether unfit for a place in a small garden; but, in a great place, amid half-wild scenery, it is one of the grandest shrubs in the list.

*Veronica Andersoni*, *V. Lindleyana*, and *V. decussata*, are capital shrubs to train on dwarf walls. A dry soil and a warm climate suit them best, and they are good subjects to grow in pots for plunging, as they can be packed away in an open shed for the winter. The best of recent garden varieties is a small-leaved plant with violet-coloured flowers, called *Victor de Lyon*.

*Fiburnum tinus*, the well-known Laurestinus, is now very gay in the southern counties, particularly in such spots as Worthing, Bournemouth, and Torquay. In the climate of London it is comparatively useless as a flowering shrub; but we have had agreeable success with it as a pot plant for plunging in the experimental garden at Stoke Newington. When grown in pots, an open shed will afford it sufficient protection, with, perhaps, a sprinkle of dry hay in very hard weather.

In selecting from the DECIDUOUS Shrubs, we shall have to make a good practical distinction between shrubs and trees; and hope none of our readers will be critical if there should be found in the list any subjects that should be relegated to the list of trees proper.

*Althæa frutex*, in variety, takes first place by alphabetical arrangement; and it is a question if it would not deserve first place in a list arranged in order of merit. Within the past month or so, we have seen hundreds of superb specimens of this fine shrub in South of England gardens, and have actually or mentally clapped our hands with joy before every one of them. At Stoke Newington it thrives in a dry, sunny border, and improves with age; but the London climate is a trifle too cold for it, and clay soil is certainly too damp. For a hot place—say, for argument's sake, a garden over a baker's oven—the *Althæa frutex* is invaluable. By the way, how admirably the character of this shrub agrees with the fiery temper of the billet-burning daughter of Thestius (see Lemprière), to whose shade, we may suppose, the genus was “dedicated”!

*Amelanchier botryapium*.—A tree, perhaps; but who shall draw the line? “No home complete without a Stereoscope” (quotation from advertisement). No garden complete without the Snowy Mespilus (new aphorism of the FLORAL WORLD). There are half a dozen species of *Amelanchier* in cultivation, but the general favourite is the best.

*Amygdalis persica*, *fl. pl.*—The double-flowering Peaches are among the wonders of the floral world. Plant a few, and pot a few, if early-flowering potted trees are of any use to you.

*Caraganas* are interesting things, but belong rather to the class

of curiosities than of things generally useful. If a few very interesting shrubs of a light character are required, plant *C. chamlagu*, *C. altaiana*, and *C. grandiflora*.

*Cerasus Japonica*, and its varieties, are known as dwarf Almonds. They are exquisitely beautiful when in flower in the open border, and are amongst the best of all known hardy shrubs to grow in pots for the conservatory.

*Clethra acuminata*, *C. alnifolia*, and *C. tomentosa*, are three pretty "snowdrop trees," that require a warm situation and a peat soil.

*Cratægus*, the Hawthorn, is of great importance among flowering shrubs, yet we call to mind that enough has probably been said about them. Those who want a few very choice thorns should select the scarlet-flowering, double red, and pink; and, all points considered, we believe the single scarlet (*C. punicea*) is the best of them, because very showy when in flower, very fragrant also, and producing plenty of berries, which the double sorts do not.

*Cydonia Japonica*, the Japan Quince, is well known as a first-rate wall-tree. An extra fine deep scarlet variety is known as *C. Japonica princeps*.

*Daphne mezereum* is a well-known cottage-garden shrub, well adapted for planting in quantity in drives and in the front lines of shrubberies. It is, however, not good enough for first-class positions, and is simply ugly as an isolated specimen.

*Deutzia scabra* and *D. crenata* are magnificent hardy shrubs, adapted for any soil or climate. But our particular friend, *D. gracilis*, can only be grown as a hardy plant in particularly mild climates, and on dry, stony, starving soil.

*Diervilla canadensis* is an ally of the Weigelia, and equally elegant and hardy.

*Forsythia suspensa* has fine scarlet flowers; *F. viridissima* makes a blaze of yellow.

*Genista tinctoria fl. pl.*, is as gay as any bedding-plant while its orange-scarlet flowers last. It is an admirable thing to plant in quantity on a sunny sandy bank.

*Halesia tetraptera* is another "snowdrop-tree." In a deep, moist soil it flowers finely in May.

*Hydrangea hortensis* is a grand shrub in a warm climate, but quite useless near London, when planted out. *H. Japonica* is equally hardy, but far less beautiful.

*Hypericum nepalense* is one of the best of a fine group of yellow flowering shrubs that make a great show in the summer season.

*Lonicera præcox*, *L. tatarica*, *L. Ledebouri*, and *L. xylosteum*, are the best of the large group of shrubby honeysuckles, and every one should have a place in every shrubbery. We have for many years regarded *L. odoratissima* with favour, but will not venture to declare that it is first-rate. It flowers very early, but the flowers, though slightly fragrant, are nothing to look at.

*Pæonia moutan*, or Tree Pæony, is equally well known for its grandeur and its fickleness. Whether it will suit this or that spot is a question to be determined by trial, and by no other means. Mr.

Bateman has failed with the plant in Staffordshire, and Mr. Headly has succeeded with it at Cambridge. At Stoke Newington, tree pæonies grow freely and flower superbly, except in seasons when late spring frosts prevail, and then the flowers are destroyed in the bud.

*Prunus myrobalana*, the Cherry Plum, and *P. spinosa fl. pl.*, the double-flowering Sloe, are two fine shrubby plants, adapted for a damp soil.

*Pyrus malus floribunda* is a wonderful little tree, and one of the loveliest for a conspicuous position on a rustic lawn.

*Ribes sanguineum* is a princely shrub when in flower, but a dull, nay, a shabby thing when the flowering is over. For this reason it should be mixed with other shrubs that present a respectable appearance in the "leafy month of June." *R. aureum*, the yellow-flowering Currant, is a lively, straggling thing, well adapted for a starving position next a fence, or in the mixed border. We find it thrive well in a position heavily shaded by trees.

*Spiræa ariæfolia* is the white Beam-tree, a good subject for the mixed shrubbery. *S. bella*, *S. callosa*, *S. Lindleyana*, and *S. Nobleana*, constitute a fine group for the front line, or to plant as a mixture in an angle of the walks. *S. Reevesiana* is adapted for extensive use, because of the decided blue tone of its leafage, and its dense, compact, and elegant habit. There are several other kinds that are worth a place in the choice garden, but these are the most desirable to begin with.

*Syringa emodi*, *S. Josikæa*, *S. Persica*, and *S. Siberica*, constitute an interesting collection of lilacs. The best of the named varieties of *S. vulgaris* are *Alba*, *Charles X.*, *Dr. Lindley*, and *Dark Blue*.

*Viburnum opulus* and *V. plicatum* are to be classed amongst the useful shrubs. The first is the well-known Guelder Rose; the second is a refined edition of it. Good enough to grow in pots for the conservatory.

*Weigelia amabilis* affords a number of beautiful varieties, and every one is entitled to a prominent place in a list of flowering shrubs, for, give them sunshine and a somewhat dry soil, and flower they will in the most delightful profusion. It would be prudent for any amateur taking interest in the class of plants under consideration to order from some large nursery "two each of all the Weigelias you have." They would only make about twenty plants in all. These should be planted in the front line of a shrubbery border, or in the third or fourth row of the mixed flower-border. They would all flower in the ensuing summer, and then a selection should be made, and any further quantities ordered of sorts considered most desirable.

S. H.

## HYACINTHS FOR CONSERVATORY DECORATION.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



HERE can be no doubt that Hyacinths are not grown so well or so extensively as they should be in small gardens, considering the beautiful effect they have when tastefully arranged with the other spring-flowering plants. Their culture is, when properly understood, exceedingly simple, and it has occurred to me that a few directions for their cultivation would be extremely useful at this season of the year.

Hyacinths can be grown and flowered in sand, moss, cocoa-nut fibre refuse, and water, in addition to the ordinary compost of loam and manure. Though good bulbs will produce tolerable spikes grown in either of the four first-mentioned materials, they bear no comparison with others grown in the ordinary compost, for the amount of nourishment in either of these materials is so small that the bulbs have little or nothing to aid them, with the exception of moisture, in the great work of bringing the flowers to perfection, and are consequently poor and weak to what they would be with the aid and advantage of proper food and nourishment to support them. Purchasing the bulbs is rather an important matter; and a few words of advice to young gardeners, and those who manage their gardens without the aid of professional assistance, may be useful. With good bulbs a novice in their culture stands a better chance of having good flowers than one well versed in the matter with poor ones. In the first place, I would say, go to a respectable place to get the bulbs, and though you may apparently have to pay a trifle more, it is the cheapest in the end. And in the second, give the orders early, and then very little danger is run of having inferior bulbs, or those which have been exposed for some time in the window. The best bulbs are those which feel solid and heavy, and more importance ought to be attached to these points than to mere size. It has been proved, times out of number, that small, solid, and well-ripened bulbs give finer spikes of flowers than light puffy ones twice the size. It should also be remembered that some varieties have larger bulbs than others, therefore no rules can be laid down as to what the proper size and weight of a perfect bulb ought to be.

The most suitable way to grow hyacinths with which I am acquainted, and I have now had many years' practice with them, is to put them singly in six-inch pots. I do not believe in all the nonsense, or in any part of what has been written about the advantage of having extra deep or extra shallow pots to grow them in. I believe that nothing equals the ordinary-shaped pot, and in this belief I feel that I am supported by all who have had much experience in these matters. Fancy vases and jardinets are all very well for drawing-room decoration, but are quite out of place in the con-



servatory. And even for the drawing-room, I am inclined to think it is far preferable to grow the bulbs in pots until they are in flower, and then transfer them to the vases. Much finer flowers can be had, as they can have the proper treatment, which is not always the case when they are grown in the jardinets from the first, because the risk of damaging these fauzy affairs has to be studied as much as the quality of the flowers. Hyacinths, though they will grow entirely in water, will not do much good when potted in close soil from which the water cannot readily escape; therefore good turfy loam full of fibre must be selected; or, if it is inconvenient to obtain this kind of soil, it may be mixed with one-third its bulk of cocoa-nut refuse, which will keep it open and allow the roots to run through it readily, and the water to escape quickly. A mixture of half turfy loam which has been laid in a heap for a few months, and half good rotten manure that is thoroughly decomposed, with the addition of a liberal sprinkling of river-sand, will grow them to the greatest perfection. Some growers use a good proportion of leaf-mould in the compost. There is no objection to its use, but I find that they do better in a compost prepared in the way I have advised. When leaf-mould is employed, a less proportion of manure will be required, for the same amount of loam ought to be used. The soil should be in a nice workable condition when it is used, and be neither too wet nor too dry. The pots must be well drained and cleau, for no plants will do well unless these two requirements are complied with; and hyacinths are no exception to the general rule. Half a dozen moderate-sized pieces of crocks will be sufficient for drainage. The soil should be made moderately firm in potting, and the bulbs be placed about two-thirds below the surface, so that the necks show just above the soil. It is not well to bury them too deep, and, on the other hand, if they are not potted deep enough, the weight of the flower-spike is apt to sway them out of their position. It is as well to rub off any of the scales that are dead and loose, for they only retain the moisture about the bulb, and if not very sound it may lead to decay before the growth commences.

After the potting is finished, a nice bed of coal-ashes should be formed on which to place the pots, and the best position for the bed is at the foot of a wall or fence, so as to afford a little shelter from the rain and frost. But supposing a position of this kind is not to be had, make the bed out in the open ground, for after all, it is of no great consequence. The ashes should be deep enough to prevent the worms getting through, and as the pots are placed on the bed, the spaces should be filled in between with either ashes or cocoa-nut fibre refuse, and covered with about six inches of the same material. Before doing this, it is as well to turn a small 60 over each bulb to prevent the ashes from touching the crowns. The time of potting depends entirely upon the time of year they are wanted in flower. For very early blooming they should be put in directly they come to hand; whilst for succession the first two weeks in October will do; but nothing is gained by keeping them out of the ground after that time. All bulbs intended for flowering early should be potted the first week in October, and then by the first or

second or third week of November the pots will be full of roots, and ready for the forcing-pit. Unless they are nicely rooted it will be next to useless to attempt to force them; and it will be well to remember that "dumpiness" of the flower-spikes, and other failures, in most instances arises from this cause.

When the pots are first brought from the plunging-bed they should be nicely washed, the whole of the ashes removed from the surface of the soil, and placed in a frame where only sufficient heat is employed to keep out the frost. The frame should be partially shaded for a few days, until the blanched foliage becomes green, as it would be highly injudicious to expose them to the full light all at once. After a week or ten days' probation in this pit, the plants should be removed to the forcing-pit, and plunged in a bottom-heat of about 65° or 70°, with an atmospheric temperature of about 50° to start with, which can be increased as the growth progresses. Keep them as close to the glass as possible, and also give as much air as the weather will admit, to prevent the foliage and flower-spikes being drawn up spindly. It is a bad time of the year to give much air, therefore every favourable opportunity should be taken advantage of for admitting it. If the bulbs are good, and have been potted long enough to fill the pots with roots, there will be very little fear of "dumpiness." Should the spikes and the foliage appear to be drawing up too fast, give less heat and more air, and a cure will soon be effected. When the flowers begin to expand, lift the pots out of the plunging material for a few days before they are removed from the pit. It is also advisable to give them the advantage of an intermediate temperature before finally removing them into the conservatory or drawing-room. A dose of weak manure-water, once or twice a week after the plants get fairly into growth, will aid in strengthening the growth and the production of fine flowers. All water, whether pure or flavoured with manure, should be a few degrees warmer than the air temperature. More especially is this necessary when watering the first batch of plants in the conservatory. I have gone through the principal cultural details necessary to be observed in the management of the first batch, therefore it will not be necessary for me to go through them again with succeeding ones, as they differ so little. About three or four batches will be sufficient, and should be brought into heat at intervals of about three weeks. But the last batch of all will require no artificial heat, and can be grown in a cold pit or greenhouse. In no case should they be allowed to make much growth in the ashes.

As a rule, it will be better for inexperienced amateurs to confine their attention to the cultivation of hyacinths without artificial heat. The bulbs when nicely rooted should be placed in a frame or greenhouse near the glass, and all the attention they will require will be to supply them with water, and to keep the structure well aired. The spikes will be much finer, the colours better, than those which were forced, and the risk of failure reduced to a minimum.

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THE EMBELLISHMENT OF THE FLOWER GARDEN  
IN SUMMER.

BY THE REV. C. P. PEACH.

*(Read at the Birmingham Congress, 1872.)*

IN some few places the plan of massing beds of separate kinds of flowers had begun more than twenty years ago, yet it may fairly be stated that as a general custom it has been introduced within the last twenty years, and we may almost date its advent into popular notice from the days of the first introduction of Tom Thumb Geranium and Purple King Verbena. My object is to defend the system against its present detractors, as I think nothing in the history of gardening has tended so much to spread the love of flowers, and to make gardening popular amongst so many people as this plan which so rapidly sprung up into favour; so that we may safely say there are thousands of plants used now, where previously they might be counted by hundreds and tens, and hundreds of gardens are gay now during the summer months where previously a few untidy borders of neglected perennials existed. This spread of the bedding-out system—of planting out, that is to say, plants in reference to their colour, habit of growth, form, and choosing plants that are most persistent in their bloom, instead of merely planting mixed borders indiscriminately—has done more to create and establish a love of plants than all the other systems which preceded it.

Now, it is very easy to find fault with bedding-out; it is very easy to say it is vulgar, and that it is a mere massing of gorgeous colours—a heap of scarlet geraniums here, and a lot of yellow calceolarias there; it is very easy to say that it is causing persons to neglect the old perennials, alpine plants, flowering shrubs, and so on. It is always, I think, more easy to find fault than it is to give judicious praise.

Now, I am not going to enter upon a general and indiscriminate defence of the whole system, but I want to show that there is no wisdom in condemning it merely because in many instances it is done without either taste or refinement. I think every nobleman, gentleman, or amateur, who cares about a garden, should not only have his garden for spring and summer bedding plants, but also an herbaceous and perennial border (which should have a background of shrubs); a rosary, an alpine rockery, and a place for growing ferns; but I would not mix them up together where it could be avoided, as they are much better kept separate and distinct. An herbaceous border can never be made to look in harmony with highly-dressed ground, nor does it look well in front of the windows of a house, and for that reason I would not mix up the two together, but endeavour to keep the garden near to the house for spring and summer plants. I also wish to point out that to carry out the bedding system well, to make a garden not only gay and rich in

colouring through all the summer months, but interesting and instructive, not only to those who grow or own the plants, but to all who see it, is by no means an easy thing, and requires not only taste, and judgment, and a knowledge of the habits of plants, but also skill in the harmony of form and colour. Nor do I, again, think it is wise, when we know how much bedding-out has done to make gardening popular. When we see our public parks in London and other large towns appreciated by so many of the lower orders, and principally, I affirm, because they can now see in great perfection, some of the most beautiful objects of God's world—flowers—which they never would have seen had it not been for the spread of the system of planting out the beds afresh every year; because the old herbaceous and perennial plants, of which there is so much talk now, could never have lived year after year amid the smoke and dust of our great towns; when, I say, we find that this system gives so much pleasure, and that of the purest kind, to the working classes, I do not think it wise to raise this present outcry against bedding-out on the score of its being vulgar and gaudy.

What I think has tended to give some persons a distaste to bedding-out is that many people who have not proper appliances and means to boot adopt the system, and make the interest of their garden entirely depend on the summer bedding, when, at the best, it is only a makeshift with them. I will not speak now of spring or winter bedding-out, the first of which I can highly recommend to those who have the proper means and amount of space to give over to it, and which, to a certain extent, can always be made to work well with summer bedding-out, even where the whole garden is not devoted to it. With regard to the latter, it has never yet given me the least pleasure when I have seen it. Winter is such a dreary time in a garden—with snow and frost, damp grass and wet walks, and dull and dark weather—that it is hardly worth while to fill beds with evergreens or coloured kales, and make patterns, as some do, with broken spar, and brick, and gravel, and ashes, and all that kind of—well, to use a strong word—rubbish. There is no growth to watch, no changes to take place, no interest to keep up. When once you have seen a winter garden there is no variation, unless it may be a little more or less snow, or a little more or less slush; so that I think one fault which is found with the bedding-out system—that the beds are empty during the winter—is comparatively a trifling one, because, if the form or plan of beds is good, and if they are properly dug over and kept tidy, they do not look in the least out of harmony with the general aspect of the winter months; moreover, if a certain amount of hardy edging plants are used, especially in the larger beds, in the general planting-out in the summer, such as variegated *Arabis*, *Golden Feather Pyrethrum*, variegated *Periwinkle*, *Cerastium tomentosum*, etc., these beds will always have a good deal of colour, and these edgings can, to a great degree, be made permanent.

I have already said that summer bedding out has often got into disrepute because so many undertake it without proper appliances, and that is not only the case with those who have only small



gardens and no glass, but also in large places where bedding out has, as it were, been superadded to the existing state of things, and gardeners to noblemen and country gentlemen have to supply thousands of bedding-out plants without any additional means being given them. This is, perhaps, one of the worst features of what I call the makeshift system. Plants have to be housed during the winter how and where they can, not according to the requirements of the plants, but according to the means at a gardener's disposal; and the plants are reckoned at bedding-out time not by their quality but by their quantity.

I do not always blame the gardener, because many employers see great masses of flowers and plants, reckoned perhaps by tens of thousands in other gentlemen's and noblemen's gardens, and then they expect their gardener to do the same without giving proper houses or additional hands, or even giving him liberty to buy new plants; so that they have to go on increasing their stock every year from the old sorts; and, perhaps every year being ambitious to bed out a greater breadth of ground, the plants at bedding-out time each year, instead of being better, are rather worse. What is the result? Why, the beds are not properly filled at first. Plants that have been drawn up in vineries or crammed in boxes in cold pits do not recover till nearly half the season is over, and instead of the garden being gay and interesting from the first day it is planted, it is often many weeks before there is any effect produced. It is not, however, only in large gardens, as I have said before, that we find this evil; any one who attempts to rely entirely in small gardens on what are usually called bedding-out plants, without proper means at his disposal, and neglects other plants on that account, is bringing the bedding-out system into disrepute quite as much as the man who beds out his thousands irrespective of their quality. He had far better do his best with perennials carefully attended to, such as Phloxes, and Pentstemons, and Pansies, Carnations, etc., and then put in a few Geraniums, tender annuals, and other things amongst his other plants, to add variety and interest. You will see, then, I am an advocate for those who wish to carry out the system of bedding-out to the greatest advantage to erect suitable houses, and to take as much pains in the winter management of them as they would with plants which they grow to ornament their conservatories or stoves; and where this cannot be done it is far better to reduce the number of plants, and to see that those which are put out are not only good sorts, but good plants, rather than to plant out too many.

Now comes an important point, and that is the general management of the planting itself. First of all, let every one have a plan of his garden on paper. Let every gardener note down from time to time during each season the habit and growth and colour of each of the different kinds of plant he grows, and then make up his mind as early as he can how he will plant his garden next year, so as to put in a sufficient stock of each kind required for the different beds, and avoid having to spoil a particular combination of colouring by falling short of some plants while they are overstocked with

others. Next, I would warn gardeners against too great a use of primary colours, such as scarlets and yellows. Let them try and get as great a variety in different shades of colour as they can. If, for instance, in a long bank, the bank be divided into a number of beds, instead of repeating the same kind of scarlet geranium or pink geranium, as the case may be, it is far better to use different kinds, so as to avoid too much repetition and to be able to compare one kind of scarlet with another, or one kind of pink or crimson with another. Use also a good deal of soft colours and neutral tints, such as *Ageratum*, Purple King *Verbena*, Geraniums of the Amy Hogg, Violet Hill, and Lady Kirkland stamp. Avoid the use of large beds as much as possible, especially large beds of primary colours; take care not to plant the centre beds of your garden with such things as Tom Thumb Geranium or yellow *Calceolaria*, so as to attract the eye from the outer beds; be careful about the use of white, though perhaps there is less need to warn against this, as there are so few white flowers, but it is as well not to overdo white variegation. A garden should be much like a good carpet in a room—rich and harmonious, pleasant for the eye to dwell on, not going into violent contrasts or glaring colours or having too conspicuous a pattern; and the effect ought to be produced, as much as possible by means of flowering plants, and not mere variegated or ornamental-foliaged plants, though these plants ought to be used in order to give diversity and difference of form, and some of the variegated plants, as tricoloured and bicoloured Geraniums, are especially useful in separating one primary colour from another. A garden, we ought to remember, ought not only to be beautiful, but it ought to be interesting; and mixed beds of Verbenas, and trial beds where one kind of plant can be compared with another, will always add to the interest of a garden, and I know hardly any bed so beautiful of itself as a well-grown bed of mixed Verbenas.

I have said nothing as yet about the plan of the flower garden or beds themselves, but, I would add, a garden for bedded-out plants ought to be rather formal and of the geometrical order for the proper harmony of colouring in bedding. The beds also should form a good pattern of themselves, not be merely so many forms cut out of grass or laid out on gravel, but should be separated from each other by a nearly uniform breadth of walk, and none of the beds ought to be too big for the others, so as to dwarf the rest by comparison. Each bed should also be of a good shape of itself, avoiding points and angles, and unnecessary twists and curves, and avoiding all unnecessary attempts at elaborate design, so as to make the flowers the secondary point. A flower garden ought essentially to be a flower garden; not so much box and gravel, not so many yards of tile and coloured paths, with statues, and vases, and grotesque figures, etc., but flowering plants should be the predominant feature.

My object in making these remarks is to stand up in defence of a system which has done so much for horticulture, and to ask gardeners to help to defend it by being still more careful about the quality of plants they bed out, and the manner in which they are grouped. I

do not wish to interfere with those who prefer herbaceous borders, and an attempt to grow plants in what they call a more natural rather than a formal manner; but as all dressed ground round houses must necessarily be more or less formal, as the mere fact of mowing a lawn and forming walks and beds prevents the adoption of flowers *au naturel*, it seems to me rather hard to condemn the taste of those who prefer to see their gardens planted with Geraniums, Verbenas, Ageratums, Calceolarias, Lobelias, and other plants of a like nature, which have proved effective in combinations, and more durable, and more manageable than the old herbaceous borders. No doubt it is my want of taste, but I have never seen an herbaceous border that was in the least attractive. I can admire individual plants, but the grouping was so utterly ineffective in old days—tall plants tied up in bundles with sticks adjoining trailing plants and dwarf alpine; plants with dead blooms running to seed mixed with others not yet come to perfection, so as never to make the border look effective at any one time.

## DEAN'S NEW BEDDING VIOLAS AND PANSIES.

BY GEORGE GORDON.



SOME time since I had an opportunity of seeing, in the seed-grounds of Mr. Richard Dean, at Bedfont, a series of new violas and pansies, which promise to be of great value for bedding purposes. Some are best adapted for flowering in spring, and others in the summer, but all possess a vigorous yet compact habit, and are remarkable for the freedom with which the flowers are produced. Violas and pansies do not succeed so well in some soils as in others, but when they do well, the varieties which it is my intention to briefly describe may be planted with every degree of confidence. They were all grown in quantities at Bedfont, and when I saw them, towards the end of August, were solid with bloom, and presented a most attractive appearance. Many of the varieties had been in bloom since the early part of March, and will continue in perfection until the end of the season. The varieties are as follows:—

### BEDDING VIOLAS.

*Blue Bell*, a very early-blooming seedling of the *V. cornuta Perfection* type; colour violet, shaded with blue, and dark indigo lines radiating from a yellow eye; very hardy, dense dwarf compact growth, remarkably free; comes into bloom early in March, and continues throughout the summer.

*Lothair*, a seedling from *V. cornuta Perfection*, crossed with a fancy pansy; colour clear indigo blue, with a slight dark blotch in the centre, and shaded upper petals; flowers of fine form, and borne

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on stiff, erect footstalks; very dense dwarf habit, continuous in bloom.

*Princess Teck*, a seedling from *V. cornuta Perfection*; colour delicate mauve, very novel and distinct, and highly effective; flowers borne on stiff footstalks well above the foliage; robust and free.

*Corisande*, a very beautiful pale primrose-coloured variety of the *V. lutea grandiflora* type; very distinct, and of fine form; early, free and continuous in bloom, compact and robust.

#### BEDDING PANSIES.

*Blue Gown*, pale blue, shaded with violet, violet upper petals, regularly edged with maroon; excellent habit; early to bloom, very free and continuous.

*Delicata*, pure white, slight dark blotch; flowers of fine form, free; a fine and most effective summer bedding variety.

*Primrose Queen*, delicate primrose, with slight dark lines round the eye, free branching habit, and remarkably profuse and continuous in bloom; very distinct, and highly effective.

*Prince Bismarck*, shaded magenta purple, a very rich glow of colour, excellent bushy habit, stiff erect flower-stalks, very free, continuous in bloom, and highly effective.

*Snowflake*, pure white, with slight dark lines round the edge, stout well-formed flowers, very robust and free branching habit, and very profuse in bloom.

#### TOM THUMB BEDDING PANSIES.

These represent an entirely new type of bedding pansies, being of a very dwarf and compact habit of growth, with an abundance of small well-formed flowers, furnishing dense tufts of colour, coming into bloom early, and remaining in flower all the summer. Useful for small beds and for edging masses of the larger-flowering varieties.

*Blue Gem*, pale violet blue lower petals, upper petals shaded violet; very effective and distinct, and remarkably free blooming.

*Lily White*, pure white, slight yellow centre, with a few dark lines radiating therefrom; flowers of fine form, very free and continuous in bloom.

*Little Gem*, lively violet blue lower petals, shaded violet purple upper petals; very distinct, free, and effective.

*Painted Lady*, pure white lower petals, the top petals blotched with violet purple, fine form, free and attractive.

*Plumripe*, shaded mulberry, an excellent hue of colour, free and effective.

*Yellow Boy*, clear pale yellow, very free and continuous in bloom; forms a dense mass of colour.



## MULTIPLICATION OF ROSES FOR THE MILLION.

## III.



IN the last two numbers of the *FLORAL WORLD* we have given full instructions for the propagation of roses from eyes and summer cuttings, and we now return to the subject for the purpose of offering a few useful hints on the propagation of roses from autumn cuttings, and thus put our readers in possession of all the information they need upon this phase of rose culture.

It is not generally known that the hardier kinds of roses may be raised in any quantity from cuttings taken now, and planted in the open ground or in frames. To strike roses from autumn cuttings, one of the first essentials is, that the cuttings should have plenty of green leaves on them. The next essential is, that the shoots selected should be growths of the same year, quite hard and stout, and pretty well ripened. Old wood is no use; and quite green, sappy, soft wood is no use. To have ripe shoots that have done growing, and on which the leaves remain quite green, we must go about the business in the month of October; and the middle of October is the best possible period for nearly every district in Great Britain. Down south and far west they may go on taking cuttings till Christmas, perhaps; but, even there, it is not advisable to postpone the work, because spring will come, and start the sap into motion before the cuttings have had time to form a callus, which, usually, is all they do during winter. It is with the first movement of the sap in spring, when the leaves begin to push, that roots are formed; and hence it is desirable to allow the cuttings to remain a whole year in the spot where they are in the first instance planted.

Let us consider the simplest mode of all. Dig over a piece of ground favourably situated for the purpose—that is to say, that is not quite a marsh all winter, and that has a little shelter of some sort. When the ground is moderately dry, and may be trodden down without making a paste of it, put in the cuttings, and tread between them to make them quite firm, and then leave them for the winter. It may happen that the ground is too wet now for the business, and you may fear that the season will be lost, seeing that the middle of October is pronounced the best time for the work. Now, there is no excuse for losing the season at all; for the cuttings may be taken at once, and be stuck into the ground, or into a heap or bed of cocoa-nut fibre, and left there for a month or more, and may then be planted where they are to remain. The object of cutting them at once is to give them a chance of forming a callus while they still have green leaves upon them, which they are less likely to do when the leaves have fallen. A few days either way is of little consequence; but if the cuttings are not made before October is out, you must not expect any of them to produce roots.

To make the cuttings properly is half the battle. Look amongst your roses now, and you will observe, if they are at all like mine,

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two sorts of wood. One sort consists of long, fat rods, like willow wands. If they are soft and pithy, they won't do. Another sort consists of rather wiry shoots of moderate length; these are hard, not so green as the fat rods, and are woody, not pithy, when cut through. It is from these the cuttings should be taken. Now, observe—little bits, such as would do in a gentle heat in summer, are of no use at all for this work; they will simply die. Take a medium-sized firm shoot, and cut it into lengths of six to nine inches. It matters not at all about cutting to a joint; the prevailing theory about cutting to a joint causes a great waste of wood in making cuttings. Do not remove any more leaves than will suffice to leave two clear joints to thrust into the soil; let all the other leaves remain, and the longer they remain the better. Whether the bed is or is not ready to receive them is of no consequence at all; the grand thing is to make the cuttings, and properly prepare them at once, and stick them in a bed of cocoa-nut fibre in the open air, and there let them remain until they can be planted properly, which should be done some time in November.

So far in respect of the simplest method of procedure. Let us say that by this system we get thirty per cent., taking the sorts commonly in cultivation, and with none of that judicious selecting of varieties which might be practised. Now for a safer way, and one that will pay for extra trouble, and that is, to do the work in frames; and the way to go about it is as follows:—Select a dry, well-drained border, and, if you have not such a border, make one. The way to make it so is to form a bottom of rubble, and on that to put eighteen inches depth or so of good sandy loam—if half sharp grit and half friable loam, perhaps better than anything else. Now let us consider why we use frames. The employment of glass *preserves the leaves for a great length of time*; consequently the callus is more quickly formed, and, in spring, growth begins early, and roots are produced long ere those in the open quarters have made the slightest move. Therefore, every way, the use of frames is desirable, and the result will be sixty per cent., if the varieties are taken indiscriminately from a good collection, and the management is good. As to the preparation of the cuttings, too, there is an advantage in the employment of glass, that a rod capable of furnishing two cuttings for the open ground, will furnish three for a frame, for they may be shorter; in fact, good cuttings containing two or three joints are quite long enough. The way to go about the business is to make the cuttings instantler, and, if the bed is not ready, to put them in a bed or box, in sand or cocoa-nut fibre, *under glass*, where there is no artificial heat, until they can be put in the bed prepared for them. Supposing the bed and the frames to be ready, plant the cuttings as close together as possible, even if their leaves intermix considerably, and put the lights on, and keep them on, giving no water at a.l. The lights will keep them green for six or eight weeks after the roses in the open ground have become leafless, and there will still be time for them to shake off their leaves and go to rest, preparatory to a good start in spring.

S. H.

## THE AUTUMN AND WINTER MANAGEMENT OF THE GREENHOUSE.]

BY A SUBURBAN GARDENER.



LIVING as I do in a suburban district, in which there is a large number of small gardens containing either a greenhouse or conservatory, I have a good opportunity for obtaining a fair idea of the way these structures are managed, by amateurs and others with but little experience, during the autumn and winter months. That in many cases the system of management adopted is far from what it should be, there can be no doubt, and it has occurred to me that a few remarks on the management of greenhouses and conservatories during the abovementioned period would be of a considerable amount of service, and perhaps be the means of preventing many good collections of plants receiving serious and, in some cases, irreparable injury.

I would commence by observing that fire-heat, when judiciously applied at the proper time, is a great boon to the gardener; but when injudiciously applied we make it our enemy; and, unfortunately, amongst some of our villa gardeners there seems to be a natural propensity for fires, and by what I have in past winters seen, there appears to be no rules to guide them; at least, such would be the conclusion a stranger would draw from what might be learnt by observation. The common belief amongst those who delight in fires is, that they are ministering to the comforts and wants of the occupants of their greenhouses, but its very application takes an opposite course to that which is intended. Fires, of course, in frosty weather, are indispensable, but even then there ought to be some discrimination about using them; and to get the house up to 50° during the day, and then let it go down to freezing-point by the next morning, is a piece of sad mismanagement, and everyone so acting will certainly, sooner or later, find out his error. Such extremes of temperature as these will certainly do more harm to a house of plants than three or four degrees of frost would do in a house where fires have been withheld. For such subjects as usually occupy a common greenhouse, very little fire-heat is necessary, except in frosty weather; in fact, they are far better without it, and there are only two reasons for which it can be admissible, viz., for the exclusion of frost and to expel damp.

During the dull months of winter, more especially after watering, the fire should be lighted, and a proper current of air be given. Watering at this season of the year should be done early in the morning, and, if possible, when there is a prospect of a fine drying day, so that all the ventilators can be opened, to dry up any surplus that may have been spilt about the stages or floor of the house; and should the weather continue dull, and no movement in the atmosphere, if the fire is started, and air given liberally, the heat thus applied will soon cause a movement in the atmosphere of the

house, and thus a supply of fresh air, which is as essential for the health of plants as for us, will be obtained. But to be continually giving fire-heat to the ordinary subjects of a greenhouse, is, to say the least, a mistake, for it must necessarily excite them at a season of the year when they should be at rest, and a shattered constitution is the result. If it were possible for us to know, how many failures should we trace to the baneful influence of fire-heat, which would fully explain the mischief of this coddling system; but, to a practised eye, it wants no better explanation than a peep from the doorway, and one glance round the house, and the future fate of the occupants is soon told. Not long since I was in conversation with an amateur, and the subject turned upon frost. It was innocently remarked that his practice during the winter was to start a fire every night, frost or no frost—a safe practice, certainly, thought I, but not a very commendable one, for it is plain he studied his own comfort more than he did the welfare of his plants. Can we wonder, then, while such practices as these are pursued, at some of the failures of which we hear—bedding plants dying, and camellia buds falling? The secret is here told and explained why it takes so long for the bedding plants to recover themselves after they are put out in the flower-beds, for, instead of being stout, hardy, and robust plants, they are sickly, long-legged things—more objects for pity than for admiration. After being subjected to this coddling system, it necessarily takes them a considerable period to recruit their health and to regain the strength which has been prematurely exhausted by the application of fire-heat in a confined atmosphere.

It is a fact worthy of remark here that amongst practical men early air-giving is considered one important step on the road to success, and I would here seriously advise the amateur to adopt the same plan on all favourable occasions. Except on frosty mornings, the first act should be to give a little top air, gradually increasing it to all plant houses up to ten o'clock, by which time you will be able to judge what amount of air the weather will permit you to give for the day. Early air-giving and early closing ought most decidedly to be the maxim in managing greenhouses. We should open early, to let off the confined air and the exhalations given out by the plants during the night, that, with the stimulus of daylight, they may again perform their respiratory functions in a fresh atmosphere. In fact, it is most desirable that all impurities which have been collected in the atmosphere of the house during the night should have a free passage to escape before the sun's rays fall upon the plants, that the solar light may have nothing to impede its action, or come in contact with matter unsuitable for the performance of its proper functions. Unfortunately, very few know anything of the influence of the atmosphere on the nourishment of plants, and undoubtedly it would be time well spent if we were to devote a little consideration to the subject. There is another fact connected with early air-giving which is deserving of our attention, and that is the improved method of constructing all horticultural structures. So close and compact are all joints and fittings now, that there is but little means of escape except through the proper channels, so that all



thoughtful cultivators will see the necessity of a diligent attention to this important subject. We should close early, to shut up as much solar heat as possible, which will greatly reduce the necessity of fire-heat, and secure to the occupants of the house a temperature more congenial to their health than anything we can supply by artificial means.

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## PLANTING FRUIT TREES.

BY THOMAS TRUSSLER.

Head Gardener, Knighton, Buckhurst Hil.



THE proper time for planting fruit and other trees having once more arrived, a few practical remarks will perhaps be of service to those readers who contemplate making fresh plantations of fruit trees, or of transplanting trees which are already growing in their gardens. Some few readers will perhaps take exception to the statement that the planting time has arrived, for there are those who still believe that midwinter and spring are the proper seasons for the work. Now I will refrain, as far as possible, from entering into matters of a controversial character, but it is necessary that I should say in the most positive manner that although trees of all kinds may be planted during the winter and spring, the autumn is the best season for the work. Trees, it should be remembered, that are planted during the months of October and November form new roots at once, and by the middle of the winter are to a certain extent established in their new quarters. - Those, on the other hand, planted in midwinter, remain perfectly dormant, and the roots that receive any considerable amount of injury will, in all probability, perish, and trees which are planted in the spring have no opportunity of becoming established before they commence growing, and have consequently to make new growth and new roots simultaneously. With this statement of facts, the accuracy of which no one can deny, the thoughtful cultivator will have no difficulty in determining the best season for planting fruit trees, and those who have any doubts upon the matter will do well to observe next summer, how much more vigorous trees planted in the autumn will be than those which are planted at a more advanced period.

There is yet another important point in planting early. Those who purchase early have the best choice of trees in the nursery, and have no difficulty in obtaining fine trees of the proper kind. But those who go to the nursery late will find the quarters containing the best and most popular sorts very severely thinned, and it may be safely assumed that purchasers who are wise enough to buy in the autumn, will also take care not to pass by the best trees.

In purchasing trees it is well to select those which have made a strong, short-jointed growth. Trees that have made a "fat" growth, and are furnished with thick, fleshy shoots, four or five feet

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in length, and those which present a starved, "hide-bound" appearance, are alike objectionable, and should be avoided. In the one case it will be probable that they have not been transplanted for several years, and have a few fleshy roots only instead of a tuft of fibrous roots, and in the other the bark will have become set in such a manner as to prevent the trees making a free and healthy growth, and moreover be susceptible to the attacks of the various insect pests which prey upon fruit trees. Care should also be taken to select trees that are well furnished with wood, and to avoid such as have attained a considerable age, and have been cut about severely to prevent their becoming large and unsaleable.

As the trees may be planted with advantage towards the end of the present month, the preparation of the ground should be commenced without delay, so that there will be no time lost when the trees come to hand. Where a quarter or a strip of ground by the side of the walk has to be planted, the soil should be trenched to a depth of about two feet. On the other hand, if the trees are to be planted in isolated positions, a circle ranging from four to six feet in diameter should be marked out, and the ground turned over to the depth here mentioned. Fruit trees require a liberal supply of nourishment, but as it is not desirable to promote a luxuriant growth, the use of fresh manure should, as far as practicable, be avoided, and that only which has become thoroughly decayed used, and even then in limited quantities. The assistance of manure is of more value when the trees are in full bearing, than when newly planted, and, as all practical men well know, it is a very easy matter to apply it when the trees need it by means of top-dressings. Soils in which fruit trees have been growing for some years should, if it can be conveniently obtained, have a good dressing of turfy loam from an old pasture or common land, and if maiden loam is scarce, a barrowful or two should be worked in about the roots of the trees when planted. This dressing of loam may also be applied to soils not previously under fruit trees with a considerable amount of advantage, but it is of not so much importance, and may be dispensed with. Heavy soils should have a liberal dressing of any light, gritty stuff, which will help to make it more favourable to the production of fibrous roots. Light soils, on the other hand, will be all the better for a dressing of heavy loam, or clay that has been well pulverized by exposure to the atmosphere for a year or so previous, and it should be thoroughly incorporated with the staple soil.

In planting the trees, let the holes be made large enough to admit of the roots being spread out in an horizontal manner. The holes should be made of the desired size, and about six inches deeper than will be necessary for the tree, and a six-inch layer of fresh soil then placed in the bottom of the hole to form a bed for the roots to rest upon. A little fresh and friable soil should also be spread over the roots, and if it is not procurable, take the soil from the surface of the quarter, as that will have undergone a thorough aëration, although it may not have been exposed to the atmosphere for any considerable period. Let the roots undergo a careful examination,

and such as may have been injured should be pruned back with a sharp knife, and they should be spread regularly over the soil with the hands. The soil must be well-trodden about the roots, but some discretion in doing this is necessary, because when the soil is highly charged with moisture, it is a very easy matter to make it pasty, and render it more difficult for the roots to penetrate it.

To keep the trees steady, secure them with stakes of sufficient strength without being clumsy, and tall standards of large size should have three stakes put to them in a sloping direction, to hold them more firmly in their place. In whatever way they are staked, put a sufficient quantity of haybands round the stems at the point where they are tied, to prevent both the stake and the cord or twine injuring the bark.

## ROSES IN THE GREENHOUSE.

BY J. BAXTER.

**R**OSSES produced under glass early in the spring are so fresh and beautiful, and so highly appreciated, that it is difficult to obtain a sufficient supply, and the regret is frequently expressed by amateurs who have a greenhouse only, that they are not able to obtain any roses until those in the open beds and borders are in bloom. The fact that a good display may be had in the greenhouse is altogether lost sight of, and it is supposed that early roses and the forcing-pit are inseparable. My object in writing now is to direct attention to the fact that a very fine display of roses may be had where there is no forcing-pit, and to describe the few details essential to success. Of course, those brought on in the greenhouse will not be so early as others pushed on in a high temperature.

Roses intended for producing their flowers under glass must of necessity be grown in pots, unless a structure can be exclusively devoted to them; and even then it will be advantageous to have a few in pots for grouping with those planted permanently in the borders. They must also be strong, and the pots in which they are grown well filled with roots. Size and strength must not be here confounded, for it matters not whether the plants have three or four shoots only, and are still in six-inch pots, or whether they have assumed the proportions of bushes, and are in pots of a proportionate size. Whether large or small, they must possess sufficient vigour to start away freely in the spring, and be able to produce wood of sufficient strength to bear large clusters of well-developed flowers. For large structures huge specimens will be the most suitable, but for ordinary-sized greenhouses, plants in eight or nine-inch pots, and with about half-a-dozen shoots each, will be found the most useful. It is, however, of but little service to speak of the value of large specimens for decorative purposes, because their cost will be quite sufficient to prevent their being purchased by any but the

most wealthy. The amateur who is anxious to have a good display of roses next season, without incurring much expense, should purchase vigorous plants in five or six-inch pots. These, pruned back to within three or four buds of the base of the shoots, will form nice specimens, and in two or three seasons will have attained the dimensions of large specimens. The plants may be purchased either on their own roots, or on the Manetti, according as they are most readily procured; but, if there is any choice in the matter, give preference to those on their own roots. It is of considerable importance to avoid disturbing the roots of such plants as are intended for early flowering next spring, and when they come to hand, simply stand them in a sheltered position, and cover the pots with leaves, or other loose material, to prevent the frost penetrating the soil. It is very important to protect the pots in which hardy plants are grown, from the frost; for, apart from the injuries received by the roots, the frost very frequently splits the pots, and renders a repotting of the plants necessary at a season when they ought to remain undisturbed at the roots.

The plants should be pruned some time before Christmas, and, if practicable, be removed to the greenhouse or pit, so that the buds, as they begin to push, will receive efficient protection from the frost. If a pit can be devoted to them, it should be kept rather close, to encourage them to start into growth early, and on the afternoons of fine bright days, a sprinkle overhead with tepid water will be of considerable assistance. The syringing overhead will be none the less useful if they are placed in the greenhouse, but, of course, it will be necessary to avoid wetting the foliage of such plants as should be kept dry, and also creating a dampness in the atmosphere hurtful to the hard-wooded plants which may happen to be in the house. They should have the warmest corner of the house, for as the object of the cultivator should be to have them in bloom at the earliest moment, the growth should be accelerated as much as possible. The soil, even when the plants are quite dormant, should not be allowed to become dust dry, and when in full growth liberal supplies of water will be necessary. After they are fairly started into growth, moderately weak liquid manure should be employed in preference to clear water. The drainage from the manure heap diluted with water will form an excellent stimulant; and second in value to that is guano water, prepared by mixing the guano with clear soft water, at the rate of two ounces of the former to three gallons of the latter, and sufficient time should be allowed to elapse before using it for the water to become nearly clear. Horse-droppings steeped in water also make a very excellent liquid manure. It must be used perfectly clear, otherwise a cake of manure will be formed over the surface of the soil and prevent the water penetrating excepting round the sides of the pots.

As the growth progresses, it will, of course, be necessary to tie the shoots neatly, and in such a manner as to insure well-formed specimens, and to admit of the flowers being shown off to the best advantage. The only enemies they will have to contend with when making their new growth are green-fly, mildew, and the rose-grub,



which curls itself up in the foliage; the destruction of the latter can be accomplished by hand picking, and a moderate dose of tobacco water will soon make short work of the green-fly; dusting the foliage with flowers of sulphur is the best remedy for mildew.

When they go out of bloom, remove to a sheltered position out of doors, and attend to them with the same care as regards watering as when they were indoors. In a fortnight or three weeks after their removal from the greenhouse, shift into pots one size larger, and use a compost consisting of three parts turfy loam and one part well-decayed hotbed, or other rich manure. A few crushed bones mixed with the compost will be of great service in promoting a vigorous growth; and wherever roses are grown in pots, the bones, as they come from the kitchen, should be carefully preserved, and when the roses have their annual shift be broken up and mixed with the compost. A few larger pieces mixed with the crocks will now be of service. After they are repotted, stand them upon a hard bottom of stones or coal ashes, and fill in between the pots with dry leaves or other loose material, for the purpose of preventing a too rapid evaporation of moisture from the soil during the hot weather. They must be placed far enough apart to afford ample space for the development of the new growth. During the summer an abundance of moisture will be required, and in the evening, after a hot day, they will be benefited by being watered overhead with a watering-can, to which a coarse rose has been affixed.

They will require pruning and otherwise managing the following autumn and winter in much the same manner as already advised; and the summer management is also substantially the same, and it is therefore unnecessary to do more than observe that, by acting upon the hints here given, a very splendid display of roses may be had under glass every spring.

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## GARDEN GUIDE FOR OCTOBER.

**KITCHEN GARDEN.**—Ground intended to be drained should be drained now, that benefit may be derived from the improvement at once. Wherever *Equisetum* or rushes grow, the cultivator may be sure there is need for drainage, and that the work will soon pay for itself in increased production. This is a better time than that usually adopted for sowing speculative crops. On lands that lie high and dry, sow Mazagan beans, and Dillistone's and Daniel O'Rourke peas. Lay down broccolis with their heads to the north. Keep plots of cabbage filled by transplanting. Take up carrots, and store only the sound roots, and those to be stored dry. Potatoes are never good if stored in the damp; better give them all away than store them as some people do, to sodden in wet, which renders them unpalatable and unwholesome. Plant chives, which never fail to furnish an onion flavouring for soups. Plant also potato onion (a profitable crop), garlic, shallots, and tree onion, the last-

named excellent for pickling. We never knew the frost hurt any of these, and we have planted generally at this season, and often on very wet soils.

**FRUIT GARDEN.**—Unfruitful trees may be improved by commencing at once to root-prune, manure, or drain the soil. The nature of the cure must depend upon the cause of barrenness. If the trees have attained a bearing age, and are over-luxuriant, root-prune by this simple method:—Open the soil three-parts round each tree, at a distance from the stem of from two to three feet, according to the size of the tree. The roots must be cut back to a general average of two or two and a-half feet, except the part where the soil was not opened, where the roots will remain of course their original length. The roots cut back to be carefully laid out near the surface, and a little fresh soil used in filling in. Next season open the soil on the side left undisturbed the year before, and there cut the roots to two or two and a-half feet, and so on annually or biennially, according to the growth the trees make. Old trees that have borne for many years and are getting weak, to have the surface-soil thinly pared off, and a layer of new soil laid down over the roots, and above that a layer of dung only slightly rotted. Trees suffering from wet at the roots, and on which there is moss and canker, require draining; and without draining they can never do much good. Strawberries to fruit in pots ought now to have plump crowns and be quite at rest, the pots full of roots and free from worms. Now lay them on their sides on coal ashes under a fence or wall, and by means of a few hurdles, or some other rough contrivances, shelter them from rain, and there leave them till taken in to force. Runners well rooted may be planted now in beds to bear next season. Plantations made at this late period should be of carefully sorted plants—the best only of the runners that have rooted farthest away from the parent stools, and these to be taken up with good balls, and planted in the beds directly.

**FLOWER GARDEN.**—The following are some of the best spring flowers, and all are exquisitely beautiful, and if not in the possession of the cultivator should be secured at once. Any of the species of perennial *Iberis*, the flowers of which are snow-white, and magnificent in large tufts on rockwork. *Aubrietia purpurea* and *grandiflora*, and *Alyssum saxatile*, showy yellow, impatient of wet, quite hardy, elevated on rockwork, and worth growing in pots. *Arabis alpina*, Italian Coltsfoot, useful to cover banks, for the sake of its perfume in February; it will flourish in the darkest of town gardens in a mixture of good loam and chalk. Double Wallflowers, we only grow two varieties now—the tall double yellow, and the dwarf double yellow, and we generally have a lot of each potted to perfume the sitting-room; they should be taken up now and potted, and put in a pit. Hepaticas, Primroses, Polyanthus, and Violets must have a place amongst the best of spring flowers—in fact, the garden will be dreary without them. Of bulbs, secure and plant a good assortment of Jonquils, Snowdrops, Crocuses, Narcissus, early Tulips, Hyacinths, Dog-tooth Violets, etc. Carnations and Picotees

not yet rooted from layers must be taken off the stools and planted under hand-glasses; those with a few root fibres may be potted; having begun to root, they will soon gain strength. Border cloves may be propagated to any extent from cuttings in spring. Auriculas must be kept clean and dry; any drip from the frames will do incalculable mischief; at no time, not even during frosts, should the roots be dust-dry; it causes an exhaustion of the plant which will tell seriously on the bloom hereafter. Carnations will often be found beset with green-fly during damp warm weather at this time of the year, in which case fumigate at once, and again a few days afterwards, and they will probably remain quite clean till they begin to grow again in spring. Plants in frames will soon be infested with mildew now, if kept close or damp. Though nothing should go dust-dry, it will be best always to defer watering till the weather is clear and bright, and then water well the first thing in the morning, that the pots and plunge material may be somewhat dry before night; one good watering will go a long distance now. During keen north-east winds—not very prevalent at this season—soft-wooded plants suffer severely if kept very dry, and at the same time they will not then bear so much exposure as at other times. Keep the plants clean by removing dead leaves and cutting off the soft tops of any green shoots of geraniums, etc., which show signs of mildew.

**GREENHOUSE AND STOVE.**—On bright days open all the ventilators in the greenhouse, to cause a free circulation of air amongst the plants. Avoid using fire-heat as much as possible consistent with the safety of the plants, and give very little water to those that have finished their growth, or which it is desirable to throw into a state of rest. Plants in pits will endure short periods of frost better if kept well aired and moderately dry. In case of a severe frost, now to be looked for, light a brisk fire early in the day; give air while the sun shines, shut up early, and trust to covering up rather than keep the fire burning all night. A clear sky and a few points of north in the wind may be considered indications of frost, and at such times the cultivator should be on his guard. Generally we have one sharp frost at this season, and then no more till near or after Christmas, and the frost generally follows close upon heavy rains. Primulas and Cyclamens to be kept in the warmest part of the house, and have every encouragement to push forward for bloom. Keep these near the glass where there is no drip. We suppose that shading from the stove was taken down some weeks ago. If any remains up now, it is certainly doing mischief, except in the case of newly-imported orchids, and other such special cases. Generally speaking, stove plants do not need much water now, but they must not go dust-dry. Be not afraid to use fire to keep a circulation of air in the house, and to prevent damp and mildew, but do not push things into growth by heat; rather promote a resting state as much as possible. Climbers may be slightly cut in for the sake of tidiness, and to favour a free circulation of air; and it would be well to tie and train in pretty close all the well-ripened wood of the season.



## GLIMPSES OF MR. SMEE'S GARDEN.

(From "*My Garden*," by Mr. ALFRED SMEE, F.R.S.—*Bell & Daldy, York Street, Covent Garden.*)

[SECOND NOTICE.]



THE VALLEY OF FERNS.

From the summer-house garden we walk down the pear-tree walk, and glance at my two hundred kinds of pears on one side. Peeping over the palings into Beddington Park, which offers pretty woodlike scenery with herds of cattle feeding on the herbage, we arrive at the Valley of Ferns. Really this valley so differs from any other scene in the garden that its effect is striking. It is like a visit to a



new country. Through its centre runs a stream pellucid, sparkling, and bright, never freezing in winter and deliciously cool in summer. . . .

On each side of its banks our English and North American ferns grow, encircled but not overshadowed by trees, as fine as they do in their natural habitats. At the



THE REED BRIDGE.

extreme end of the valley of ferns is a bower which commands the pear-tree walk, the valley of ferns with its brook, and a most charming view of Beddington Park.

“Here can I sit alone, unseen of any,  
And, to the nightingale’s complaining notes,  
Tune my distresses, and record my woes.”—SHAKESPEARE.

Adjoining the valley of ferns we have a miniature forest of ferns, where large tree ferns are planted out in summer with good effect; and thence crossing the brook by a stepping-stone, we arrive at our outdoor exotic fernery. This is protected by stumps of trees, and is so planted around that the force of cold winds is broken. Here species of *adiantum*s flourish, and stand severe winters. Here the grand *Lomaria chilensis* shows its noble stiff foliage, so unlike that of other ferns. Here the *Woodwardia orientalis* and *W. radicans* live, but do not thrive. Here the *Cystopteris bulbifera* grows like a weed, and seems to emulate the Prussians by taking to itself the ground which should belong to its neighbour. The water ferns come next, then the wall ferns, where *Asplenium germanicum* and *Ceterach* grow as though they were at home; and then we examine the cave where polypody covers the top, and scolopendrium and other shade-loving ferns live in the interior.

## HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY. EXHIBITION OF ASTERS AND DAHLIAS, September 4.—The exhibition of Dahlias, at the meeting held on the above-mentioned date, was very poor. The display of Asters, on the other hand, was exceedingly good. The prize-takers in the open class for twenty-four Dahlias were Mr. John Keynes, Salisbury; Mr. Charles Turner, Slough; Mr. Searle, Sevenoaks; and all the blooms staged were remarkable for size and high finish. The flowers staged by Mr. C. J. Perry, Castle Bromwich, in the class for twelve, were also very fine. The competition in all the classes for Asters was very severe, and the blooms staged in much finer condition than they are usually met with. The principal prizes were awarded to the stands exhibited by Mr. Rowe, gardener to Mrs. Lewis, The Rookery, Roehampton, Mr. G. Wheeler, Warminster, and Mr. Walker, Tbanne, Oxon. The groups of six Asters in pots were also exceedingly good, and the prizes were awarded as follows:—Mr. Rowe, first; Mr. George, gardener to Mrs. Nicholson, Putney Heath, and Mr. Porter, Isleworth. Messrs. J. Veitch and Sons, Royal Exotic Nursery, Chelsea, exhibited a very large and fine group of Asters in pots, representative of the various types in cultivation, and Mr. Richard Dean, Ealing, exhibited blooms of the Victoria Aster raised from home-saved seed. Of Verbenas, the only stand requiring notice was that contributed by Mr. C. J. Perry, who, as usual, staged grand examples of the leading varieties. The following were very fine:—Rising Sun, Sir Roger, Lilac King, Shakespeare, Kate Lawden, Meteor, Enebantress, Black Prince, Mauve King, Géaut, Pink Queen, Emma Weaver, Henry Laws, Rosy Morn, William Dean, Magnifica, Apollo, Nebula, and Mrs. Stenger—all of which are excellent exhibition varieties. Mr. William Paul, Waltham Cross, was the only exhibitor of six specimens of *Lilium lancifolium*, and staged the finest examples of this beautiful Lily exhibited in London for many years past.

ROYAL HORTICULTURAL SOCIETY, September 18.—At this meeting, the principal objects of interest were the collections of Tomatoes, Onions, and Beetroot. The first prize in each of the three classes were awarded to Mr. Pragnall, the gardener at Sherborne Castle. There was also a very large collection of Cabbage.

GREAT INTERNATIONAL FRUIT SHOW AT GLASGOW, September 11, 12, and 13.—The great exhibition of plants, fruits, flowers, and vegetables, which was held on the above-mentioned dates, was one of the most splendid affairs of the kind ever held, and the best autumn exhibition of horticultural produce held for many years. The exhibition was held in Burnbank Hall, under the auspices of the Glasgow and West of Scotland Horticultural Society, and managed by a committee specially appointed for carrying out the details. Growers of all grades had an opportunity of showing the results of their skill, and the classes were so formed that the exhibition should be thoroughly representative; and those for Grapes were so thoroughly complete, that nearly every variety worth growing made its appearance on the exhibition table. The fine-foliage plants and ferns were staged in immense numbers, and in splendid condition. There were but few flowering plants, owing mainly, of course, to the lateness of the season; but such things as Zonal Pelargoniums and Fuchsias, which might have been exhibited in the finest

condition, were hardly presentable. A few things of an inferior description will always find their way into exhibitions, but this was remarkably free from everything which was not in every way first-rate. The hall in which the exhibition was held was three hundred feet in length, and one hundred feet in width, and three broad flat stages were erected down the middle, with ample space between them for the visitors, and a flat stage all round. These stages were devoted to plants and fruit, and the cut flowers, of which there was a magnificent display; and some of the plants were arranged in large tents erected in the grounds adjoining the Hall. The tables were covered with red cloth, which gave the hall a warm and cheerful appearance, and brought out the beauty and grace of the fine foliage plants to much greater advantage than would have been the case had the stages been covered with either green or drab. Had many bright flowers been exhibited, of course a less bright and showy colour would have been more suitable, but, as it was, nothing better could have been desired, or more appropriate.

**INTERNATIONAL HORTICULTURAL EXHIBITION IN ITALY.**—We learn that the Tuscan Horticultural Society is about to organize such an International Horticultural Exhibition at Florence in 1874, similar to those which have been held at Brussels, Amsterdam, London, Paris, and St. Petersburg.

**INTERNATIONAL EXHIBITION OF FRUIT IN LONDON,** in connection with the Horticultural Department of the London International Exhibition, 1872. A great international exhibition of fruit will be held at South Kensington, Wednesday, November 6, in which all home and foreign growers of fruit are invited to take part, and for which occasion a liberal schedule of prizes has been issued.

**THE VALUE OF ROSE-BUDS IN AMERICA.**—The commercial value of rose-buds at special important holiday seasons in America is very considerable, and sufficient to astonish many of our readers not acquainted with the retail prices at Covent Garden. Mr. Peter Henderson, in an article in *Hearth and Home*, gives a fair idea of how often the dainty rose-bud brings its high price of one dollar: "Twenty years ago," observes Mr. Henderson, "camellia flowers retailed at from fifty cents to one dollar each, and no piece of flower work was thought complete without them. Now they are at a discount, and do not throughout the season average half the above-named price. Now rose-buds, that then were not worth as much by the dozen as a single camellia, are now nearly of equal value, and some particular kinds even more so. One of the leading florists on Broadway informed me that in the week ending December 2 he sold one hundred buds of the *Maréchal Niel* rose for a hundred dollars, for which he paid the grower fifty dollars. 'Tea' roses, as they are called, are required this season in every basket or bunch of flowers, and the bouquet-makers are nearly driven to their wits' end to get them. The fashion for Tea roses has already spread to the country towns, and hardly a day passes that orders are not sent to us that we cannot supply. Church fairs, which did not formerly invest in our expensive and perishable commodities, now find that the Tea rose-bud for the button-hole is sought after by hundreds of purchasers. I was waited on the other day by the 'flower committee' for a church fair in one of our suburban towns. The first item on their list was three hundred Tea rose-buds. The wholesale price was twelve dollars per hundred, yet they were much disappointed that only one hundred, instead of three hundred, could be spared. The number of glass structures for growing rose-buds in the vicinity of Boston and New York has probably been doubled during the past year, yet the price has advanced one-third. The kind mainly grown are *Bon Sileue* (carmine purple) and *Safrano* (orange-yellow). The *Safrano* is popularly known as the Tea rose, but there are a great many others belonging to this class. The *Maréchal Niel* (golden yellow) and the *Lamarque* (white) are grown, but not so extensively as the 'Tea' varieties, as they require greater age before they begin to flower, and being climbers, flower best when trained to trellis work. The large price paid for the buds of the former, however, will no doubt stimulate to its more general cultivation."

**WARMING GREENHOUSES WITH GAS.**—Mr. James Copcutt, of Aylesbury, gives the following particulars, in the pages of the *English Mechanic*, of a system he has adopted for heating a small greenhouse with gas. He says, "I have completed an improved system of gas arrangement, and for several weeks past I have used the gas to warm my greenhouse, which is twenty-five feet long, thirteen feet wide in middle, and twelve feet high; part span. The arrangement outside of the house is an improved air and gas burner acting on a conical double jacket copper boiler with ordi-



nary two-inch flow and return joints, and four-inch iron pipes inside greenhouse. When once lighted the gas continues to burn day and night, without further attention or labour. The cost of the gas used is about one shilling per day. (The price of gas here is 5s. per 1000)."

**ORANGE-GROWING IN CALIFORNIA.**—As an instance of the productiveness of the orange tree under favourable conditions, it is stated that in California the average yield per tree is 1500. If 1000 oranges be assumed to each tree, however, and seventy trees be assumed to the acre, the product of 70,000 oranges results. Calculating that these sell at 20 dollars per thousand, the result of 14,000 dollars for an orchard of ten acres is given. Cutting off one-half to allow for all contingences, 7000 dollars still remain as the offspring of a single crop. The proceeds of a recent crop at Los Angeles are reported at 20,000 dollars, while 500 dollars included the entire outlay due to pruning, taking care of the ground, and so forth.

**A SUGGESTION FOR SAVING FRUIT TREES FROM THE ATTACKS OF INSECTS.**—At a recent meeting of the Entomological Society, Mr. Muller read a paper containing some remarks concerning the habits of certain Gall-producing Saw-flies of the Willow, which are said to avoid those portions of the tree that overhang water; and he suggested a practical application of the theory, to save choice fruit trees from the attacks of insects, by surrounding them at the base with glass, which, it is well known, is often mistaken for water by aquatic insects.

**A NEW CHRISTMAS ROSE.**—Mr. Mc'Nab presented at a recent meeting of the Botanical Society of Edinburgh a variety of Hellebores raised from seed by Mr. G. M. Butler, nurseryman, Finnart, Greenock, being crosses between *Helleborus purpurascens* and *atrosanguineus*. The habit of the plants, as well as the size of the flowers, approaches *H. purpurascens*, while the colour is intermediate between the two. These hybrids have the appearance of proving great acquisitions, as adding to our stock of hardy winter-flowering plants, now so much wanted.

**THE VALUE OF THE FLOWERS OF THE LAPAGERIA FOR BOUQUETS AND VASES.**—Mr. D. T. Fish, Head Gardener, Hardwick House, Bury St. Edmunds, in a recent issue of the *Field*, directs prominent attention to the value of the flowers of the *Lapageria* for bouquets and vases in the following terms:—"The rose-coloured *Lapageria* and its white variety, on account of the size, form, consistence, and durability of their flowers, are among the most choice and valuable for cutting. The latter is a most important quality most fully developed in the *Lapageria*. The flowers have a wax-like consistency that preserves them from fading for days, or even weeks. Pendant branches, hung thickly with rosy pink or white bells, are simply magnificent for vase and basket work, the effect being unique and inimitable. The flowers strike one at once as of the highest quality, while their size adapts them admirably for large vases, etc. A vase filled with *Brugmansia suaveolens*, with *Lapageria rosea* fringing its sides, has a magnificent effect. Single flowers, set in green moss or fern, are telling in flat arrangements. Then, for centres or for forming hand bouquets, the *Lapageria* mounted singly furnishes material of the first quality. A single flower of either the rose or white variety forms an exquisite eye or centre. Both colours may be used in the bouquet with good effect. A white centre, with three or five rose-coloured flowers round it, forms, with green backing and fringe, and a little "stabbing" of Lily of the Valley, *Hoteia japonica*, violet, or mignonette, or other slender flower, for contrast and perfume, a perfect bouquet. A rose centre with white around is equally beautiful, and more chaste. The white variety gives quite a new character to wedding bouquets. This is a great boon; for few arts are more difficult than the securing of variety in bouquets spotlessly white and green only. The novelty of form, too, in the *Lapageria* is an advantage to the maker of wedding bouquets. The only difference in the two varieties is that of colour; in all other respects they appear identical. The white does not manifest that great weakness even that often appears in white varieties, as if white were indeed the breath of consumption, or the pale touch of early death. Still, the white variety is not yet generally cultivated, though it ought to find a place in every garden." [We quite agree with Mr. Fish, with respect to the great usefulness of the *Lapageria* blooms for almost all purposes to which cut flowers can be put; the cause of the white variety not being generally cultivated is undoubtedly its high price, the smallest sized plant that can be purchased is worth three guineas, and we were assured the other day by one of the principal nurserymen that it was well nigh impossible to keep pace with the demand, because of the difficulty with which it is propagated.]



## TO CORRESPONDENTS.

**MEALY BUG ON GRAPE VINES.**—*D. B.*—The vines are badly infested with Mealy Bug, which is one of the worst pests with which they could possibly be attacked, because of the extreme difficulty in eradicating it. There is really no remedy for it, because none of the insecticides can be used strong enough to destroy it without injuring the vines. We would advise you to have the vines pruned early, and after the loose bark has been removed, thoroughly washed with hot water and soft soap. A brush such as used for washing the wheels of carriages is the most suitable, as it can be worked into the crevices about the spurs better than any other. The soft soap must not be used too liberally, or it will probably injure the buds. After the whole of the canes have been well washed, paint them over with a solution of Gishurst compound, prepared at the rate of four ounces to the gallon of soft water. The house may also be fumigated with sulphur when the vines are perfectly dormant, without injury to them. The vinery must, of course, be cleared of all other occupants, or the fumes of the sulphur will destroy them. The walls should be whitewashed, the wash being made with unslaked lime, and applied when quite hot. The vines should also be frequently examined after they commence to make new growth, and every trace of the mealy bug removed as fast as it makes its appearance. It is a tedious affair, but it is only by perseverance that the pest can be removed. The greatest possible care must be exercised to prevent the mealy bug reaching and spreading on the other vines.

**MANAGEMENT OF PEACH-HOUSES AFTER GATHERING THE FRUIT.**—*A Young Gardener.*—As the sashes are moveable, and the crop gathered, by all means remove them. It will save much labour in syringing, and the trees will receive the benefit of every shower and the heavy dews. Trees that cannot be uncovered after the crop is gathered generally get so much infested with red-spider at this season, that the foliage falls off before it is properly ripened, and, consequently, before it has fully performed all its proper functions. When this happens, the flower-buds for next season are not properly formed, and many of them fall off directly the trees begin to move in the spring. In cold wet seasons, it is as well to let the lights remain on; the wood ripens in that case better, and the borders do not become saturated with heavy rains. In ordinary seasons, the autumnal rains are better for the trees than water applied through the spout of a watering-pot. We do not agree with keeping the lights off until a few weeks before starting the house, because exposing the trees to severe frosts through the winter, after their having been kept in a high artificial temperature all the summer, does them more harm than good.

**ROSES.**—*M. A. D.*—The border may be planted as you suggest with roses on their own roots, and the effect would be exceedingly good. It is preferable to peg down the long shoots in the autumn, as they will flower the following season throughout their whole length. We are glad that you have met with such a large degree of success with striking rose cuttings.

**EUPHARIS AND AMARYLLIS.**—*A. B. S., Torquay.*—It is very possible that the plants do not enjoy a sufficiency of heat when making their growth. With respect to the Eupharis keep it rather dry at the roots during the forthcoming winter, and in the spring start it into growth by standing the pots upon, or partly plunging them in a brisk bottom-heat. By referring to the *FLORAL WORLD* for August, 1869, you will find full instructions on the cultivation of Amaryllis from the pen of Mr. Baxter, who is undoubtedly the most successful raiser and cultivator of these splendid flowers of the present day.

**R. H. M.**—The seed would of course germinate unless some means were taken to destroy its vitality before mixing it with the loam, otherwise the sweepings may be utilized in the manner mentioned.

**CORNISH HEATH.**—*Subscriber.*—Many thanks for the fine specimen, which came to hand in good condition.

**ROSE MONS. FURTADO.**—*E. L. S.*—The variety first mentioned is quite right.

**J. R.**—The Orange-trees and the Datura would do very well in the house, but there would not be quite enough heat for the Gardenias, they would probably keep alive, but it is extremely doubtful whether they would grow satisfactorily, and flower freely. We cannot understand why you fail in growing the lilies. They

should be repotted if they require larger pots in the autumn, not in the spring, as they are then furnished with new roots, and suffer severely if disturbed. The striped lily may be grown in pots in the greenhouse or the open border. If the *Griffinias* are in a bad state at the roots, turn them out of the pots, remove the old soil, or as much of it as can be taken away without damaging the healthy roots, and repot in a fresh compost. As the *Lilium* has done so well with you in the greenhouse, we would advise you to keep it in the conservatory.

**FERNS.**—*Tarbolton*.—We cannot possibly undertake to name fourteen ferns at once, especially when the specimens are parts only of small miniature fronds.

**WINTER FLOWERING TROPEOLUMS.**—*Osmunda*.—The very best of the winter-flowering tropeolums are *Brilliant* and *Cooperi*; *Wellington* is a fine strong-growing scarlet geranium for covering trellises, as also is *David Garrick*.

**PLANTING AND SELECTING WALL TREES.**—*G. T. M., Herts.*—Try to have the planting finished by the end of October. The trees will then get nicely rooted at once, and start freely away in the spring. Spring planted trees lose the best part of the season in making roots. If your soil is naturally good, trench in a moderate dressing of thoroughly-decayed manure. Mix the manure well with the soil, and trench as deep as the nature of the subsoil will admit. To insure the highest degree of success, take out a couple of barrowfuls of the old soil where the trees are to be planted, and fill in with good turfy loam chopped up roughly. Spread the roots out carefully, and keep them near the surface. If the soil is uncongenial, take it entirely away to the depth of three feet, and fill the space with good turfy loam. This would be expensive, but the cost would be more than repaid in the superior quality and quantity of the fruit. Do not mix any manure with the soil in the first instance: it would promote too great a luxuriance in the growth. What is wanted is medium-sized stubby and well-ripened wood. The following selections will suit you, and we think you cannot well improve upon them. *Peaches*: Late Admiral, Barrington, Bellegarde, Chancellor, Dymond, Early Grosse Mignonne, Malta, Grosse Mignonne, Noblesse, Royal Charlotte, Royal George, Stirling Castle, Violette Hative. *Nectarines*: Elruge, Hunt's Tawny, Murray, Pitmaston Orange, Hardwick's Seedling, Violette Hative.

**WEAKLY WALL-TREES.**—*H. W.*—The trees have exhausted the soil in which they are growing, and are therefore unable to make progress. Give the border a dressing of about three inches of good rotten dung, and dig it in the border early this autumn, but without going deep enough to injure the roots. Excessive cropping would account for the fruit being small on your free-growing trees.

**FUCHSIA FULGENS.**—*William Smith*.—This fine old fuchsia is not half so much grown as it ought to be. In these days of foliage decoration it ought to come into a good place, for the sake of its fine leaves. It is one of the easiest things to grow. There can be no better way of managing it than to plant out young well-rooted plants in a moist bed, enriched with a good deal of leaf-mould and well-rotted cow-dung. There let them grow and bloom as they like, and in a dry season give plenty of water; it can hardly have too much if the drainage is good. At the end of October take them up, cut them close over to the crown, and stow their roots in boxes with some poor sandy soil shook well amongst them, and keep just moist enough to prevent shrivelling. Put the box on the top of a flue as soon after Christmas as you like, and keep it there till the roots throw up new growths, from which take as many cuttings as you want, and strike with a pretty good bottom-heat. These will make fine pot-plants, which are to have good shifts as they require it, and a saucer to each for water after the middle of May. The roots from which the cuttings have been taken may be potted, and got hard by May to be planted out again. Clumps of four or five plants together in the front of a mixed border look fine. For all other purposes it may be grown the same as any other fuchsia.

**PRESERVING WALNUTS.**—*H. M.*—Walnuts that are to be preserved as long as possible should be allowed to remain on the trees until the outer husk begins to crack; they should then be gathered, and the husks removed, and the nuts spread out to dry. When dry to the touch, pack them in sawdust (avoid the sawdust of resinous woods as unfit), in earthen jars or wooden boxes, and store them away in a cool dry place. They may be better preserved in sand than sawdust, but we do not like sand to touch them, because of a little uncertainty about their being thoroughly cleaned before they come to table.





BEAUTY OF MANI



## CULTIVATION OF THE APPLE.

*(With Coloured Plate of Beauty of Hants Pippin.)*

THE APPLE takes the first place for usefulness amongst our hardy fruits, and deserves the best attention of the amateur. It would be waste of words to enlarge upon its value in the household, and its especial merit as the friend of youth, but it may be to the purpose to remark that, plentiful as apple-trees are, there are not enough of them in the land, and therefore we shall serve our country if we can persuade some of our readers to plant apple-trees. It is not at all unusual to find gardens rich with flowers, but without a single apple tree. On the other hand, we never find a family, comprising a few young people, wherein apples are despised, or the gift of a bushel of rosy-cheeked ones would be regarded as an insult or a superfluity. There is, perhaps, one objection to the planting of apple-trees that should be noticed here. It is that in gardens of limited dimensions the tree is considered too homely and rustic in character, and is driven out by trees that subserve no other purpose but to please the eye. To quarrel with ornamental trees, or those who love them, is no part of our business; but reference may be safely made to some good old gardens, where venerable apple-trees cast pleasant shadows on spacious breadths of smooth green turf, for there, perhaps, the useful fruit-bearers have all the noble ugliness, and all the dignity too, of oaks, and surpass all possible oaks in beauty when their golden and crimson fruits make dots of light and lusciousness amongst their boughs. Ask the boys about the beauty of apple-trees, and despise not the opinion of the miniature misses. But as apple-culture has of late years been adopted into the circle of the fine Arts, it is our duty to mention—and we do so hopefully—that they may be grown in fanciful and expensive methods, so that those who despise profit, and would grow fruit purely as an intellectual and tasteful pastime, may give their minds to apples, and regard them as representing the rise of the human race in costly civilization, as they have, in times past, represented the fall of humanity in things spiritual and moral. A series of cordon apple-trees, trained to wires on a strawberry border, which they adorn when strawberries are past with garlands (or say ropes) of such handsome fruits as the *Calville Blanche*, *Reinette du Canada*, *Beauty of Hants*, *Gloria Mundi*, *Crofton Scarlet*, *Mere de Menage*, and such like bouncers, may be cited as exemplifying the artistic value of the apple-tree, and any one who likes to train trees in the form of goblets, globes, and true lovers' knots, may show that vulgar profit—dead weight, or so much a bushel—is not the object sought in this particular pomological venture. It must be confessed, however, that there are more elegant trees in the world than the gracefulest of apple-trees, and yet, a great old broken-backed, lichen-splashed, wide-spreading, knotty-branched, gnarled and ancient looking apple-tree, in full bloom in the month of April—covered with miniature white roses and bright pink buds, and whispering

hoarsely as one passes of juicy apples in plenty for those who will wait for them, is a pleasing sight, and comes very near to prove to the simple-minded, "a thing of beauty and a joy for ever."

The apple is an accommodating fruit, but is not quite hardy enough for universal cultivation in these islands. The best soil for apple-growing is a deep loam resting on clay, well drained, and some time cultivated. It requires a substantial, nourishing, and somewhat moist soil; it will endure some amount of stagnant water at the roots occasionally, but those who desire apples of fine quality in the greatest possible plenty must first take care to have the land sufficiently drained, and it should be double trenched and cultivated for at least a year before the trees are planted. It must be remembered, however, that as the apple is grafted on several kinds of stocks that differ somewhat in constitution, those who cannot provide a deep well-drained fertile loam resting on clay may, nevertheless, entertain hopes of successful apple-growing. On such a soil as we recommend, and on *every other soil* which is known to suit trees generally, and produce good cauliflowers and turnips, apple-trees of all kinds may be planted, allowance being made, of course, for the climate, which may suit some sorts better than others. On what may be called an apple soil—and the term would be appropriate to the soil of a district noted for the production—the simplest, and, for all ordinary purposes, the best mode of procedure would be to plant good sorts on crab stocks, and give them the least possible attention ever after. When the books have told all their strange tales about pruning, and pinching, and training, and disrooting apple trees, it is still true that the rough-and-ready mode is the best; and given good trees and a suitable soil to begin with, the work may be said to be all comprised in simply planting them properly.

But for unkind soils and for fanciful purposes, we have dwarfing stocks, which, though properly belonging to the class of garden toys, are not altogether valueless where a supply of good fruit is the main object of the cultivator. All the dwarfing stocks are adapted for shallow soils, and the most useful of them is the Paradise stock, now largely employed in the production of cordon, pyramid, bush, and goblet-trained apple-trees. There has been much written about these dwarfing stocks by persons who never grew an apple-tree in their lives, and, as might be expected, one important point has been missed, in common with many others, not altogether unimportant. The Paradise, in common with other dwarfing stocks, answers admirably on soils of good quality, where the depth is insufficient for the crab. As a matter of course, it does not make a large tree on a shallow soil, but it fruits early, and makes a fair return for the ground it covers. On the other hand, it does not answer on the rich deep moist loam that suits the crab, unless planted on stations, for a strong soil overcomes its abstemious nature, persuades it to become a glutton, and the result is a coarse growth that pinching and pruning only aggravate, and a deferring of fruitfulness until the cultivator's patience is well nigh exhausted.

To train the apple-tree is always a simple business, because the growth consists, for the most part, of long flexible shoots, which may

be tied to any form which does not require an extravagant amount of twisting. The tying down should not be done until the growth of the season is nearly completed, but it should not be deferred until the shoots have become so hard as to be bent with difficulty, and perhaps some degree of rupture of the wood at the base. A branch may, indeed, be half snapped through, and it will live and bear fruit, but bruising and breaking are not artistic processes, and they do not conduce either to the beauty or the vigour of the tree. It is good practice to train in all new shoots their full length if possible, but they must be sufficiently far apart to enjoy abundance of light and air. I am no advocate of frequent or excessive pinching, knowing but too well how likely the practice is to defer, rather than hasten, fruit production. Long rods trained in full length will take the sap of the tree; whereas, if they were cut back early in the autumn, the sap might be expended in the production of a lot of useless spray. And these same long rods are likely to produce fruit spurs their whole length, but when they throw outside shoots that are not wanted, it is good practice to pinch these side-shoots back, for the next movement of the tree may be to make fruit-spurs of them. So again in the management of bushes and pyramids, the trees should be allowed to make long rods as a rule, but the cultivator should pay especial attention to the growth during May and June, bearing in mind that where gaps want filling up, side-shoots for the purpose may be obtained by stopping strong rods, while useless rods and side-shoots may be advantageously pinched to encourage the formation of fruit-spurs, unless it is obviously advantageous to cut them out altogether.

In connection with the culture of the apple, a number of interesting subjects demand consideration, which we must take no notice of now, because of the limited space at our disposal. But two of the number are of such importance that it would be unjust to the reader to exclude them with the rest. The first of these is the planting of trees on *stations* to prevent the roots finding their way into a bad subsoil. A station is made by marking out a plot for every tree six feet square. The earth is taken out to a depth of two feet, and a bottom of hard materials six inches deep is put into the hole and rammed solid, but must *not* be cemented. Any cheap material in the form of rubble will answer, whether bricks, stones, flints, chalk, or large clinkers, and a thin coat of gravel or cinders should be spread for a finish, and then a sufficient amount of earth must be returned to spread the roots of the tree upon, and the planting can be completed. If the soil taken out is good enough, of course it can be returned for the service of the tree, but if not, it must be wheeled away, and some good turfy loam, or other suitable soil, must be obtained to take its place. Again, if the natural soil is too dry, and stations are formed to secure to the tree a sufficient body of good soil in a limited compass, it will be well to excavate six inches deeper, and finish the station *below* the general level. On the other hand, if the natural soil is too wet, an excavation of one foot deep may be sufficient, and when the hard materials are rammed in, the station may be made up with earth brought to the spot *above*



the surface, so as to keep the roots of the tree clear above the water.

The other matter on which a word may be said advantageously is *American blight*. This pest of the apple-tree appears in the form of a white cottony mass, which conceals an insect, the crushing of which gives rise to an offensive brown fluid. This destructive parasite may be kept at bay most completely by those who are blessed with patience and perseverance, and it must be remembered that it is always *visible*, and therefore there is not much excuse for allowing it to run rampant through the orchard. One of the most effectual methods of dealing with old apple-trees in winter is to scrub them with a hard brush frequently dipped in warm brine. This will not only cleanse them thoroughly, but in some part renew their youth. When the pest makes its appearance on young trees in small patches, a cheap and effectual remedy is petroleum oil applied with a brush. Another effectual remedy is spirit of turpentine rubbed in with a brush. Both oil and turpentine are likely to injure the bark if used in excess, and they will kill every leaf they fall upon. But both may be used with perfect safety if care is taken not to slop them about, or lay on a large quantity anywhere. Even a dry brush kept in constant use as the plague appears, will, in the case of young trees with a smooth bark, prove a sufficient remedy.

As personal tastes and domestic requirements differ, it is impossible to advise on every point in the selection of apple-trees. As a rule, the late-keeping sorts should be planted in greater quantity than those that last but a short time. The following selection will, no doubt, prove useful to many readers who are now forming or improving fruit collections:—

**TWELVE DESSERT APPLES** of the finest quality, arranged in the order of their ripening:—*White Juneating*, Aug.; *Red Astrachan*, Sept.; *Kerry Pippin*, Sept.; *Court Pendu Plat*, Nov.; *Cox's Orange*, Dec.; *Ribston*, Dec.; *Golden Pippin*, Jan.; *Scarlet Nonpareil*, Jan.; *Court of Wick*, Feb.; *Reinette du Canada*, April; *Sturmer Pippin*, May.

**TWELVE CULINARY APPLES** of the finest quality, arranged in the order of their ripening:—*Hawthornden*, Aug.; *Duchess Oldenburgh*, Sept.; *Emperor Alexander*, Oct.; *Blenheim* or *Beauty of Hants*, Nov.; *Lord Suffield*, Nov.; *Mere de Menage*, Dec.; *Wellington*, Feb.; *Forge*, April; *London Pippin*, April; *Northern Greening*, April; *Bess Pool*, May; *Gooseberry Pippin*, May to August.

**TWELVE FINE APPLES** suitable to train as horizontal cordons:—*Calville Blanche*, *Reinette du Canada*, *Reinette d'Espagne*, *Newtown Pippin*, *Beauty of Kent*, *Pomme d'Api*, *Tower of Glammis*, *Reinette Grise*, *Reinette très Tardive*, *Northern Spy*, *Cox's Orange*, *Kerry Pippin*.

The new apple represented by the coloured plate, *Beauty of Hants*, is in every respect an improvement on our fine old favourite, *Blenheim Orange*. It differs from that chiefly in its more intense and perfect colouring, but is also different in form, being less depressed, and the eye is placed in a somewhat shallower basin. In



texture and flavour it is also somewhat in advance of its parent, and therefore it may be considered worthy of a place in the best collection of apples, either in a large or small garden. Mr. Thornton, of Heatherside Nurseries, Bagshot, is the proprietor of Beauty of Hants. S. H.

## CULTURE OF HARDY BULBS.

BY M. LOUIS VAN HOUTTE, OF GHENT.



**HYACINTHS.**—*In open Beds.*—Hyacinths may be set any time between 1st of October and 1st of December, in a light soil containing a liberal admixture of sand, or in one that has been well worked, and not too recently dunged. Preference should be given in the matter of manure to well-rotted cow-dung. If the situation be damp, the bed should be raised, with a slight slope towards the south; and a bottom of branches of trees and rubbish should be put in a couple of feet beneath the surface, to facilitate the escape of the water. The bulbs should be set in at a depth of  $5\frac{1}{2}$  inches to  $7\frac{1}{2}$  inches, and from  $4\frac{1}{2}$  inches to 6 inches apart, taking care not to press down the earth over them. When the frosts commence, the bed should be covered with dead leaves and litter, which should be removed again when there is no further risk of sharp frost. ° In dry weather, while the plants are growing, they should be lightly watered.

*Forcing in Pots.*—Hyacinths may be planted in pots or vases of any desired shape, and of a size depending upon the number of bulbs they are intended to receive. For single bulbs we use pots  $4\frac{1}{2}$  inches in depth, and the same across the top. The bulbs may be set any time between 1st of October and 1st of December, but the month of October is the most favourable season. The pots should be filled with good garden soil, leaf-mould, or peat-earth, and the bulbs set in so that the collar of the plant alone may be above the surface. This done, we turn the pots out of doors, plunging them in a border for six or eight weeks, taking the precaution meanwhile to cover them over lightly with litter if there be any fear of frost. At the expiration of this period, the hyacinths will have put out their fibres, and the leaves will show; they are now ready for forcing. The pots should be taken up and placed close to the light, in a room, or in a glass-house, allowing the plants as much air as possible.

If we wish to hasten the bloom, we place the plants where the temperature can be gradually raised, taking care to give them plenty of light meanwhile. When the hyacinths are first brought indoors, whether it be in a living room or a hot-house, they should be watered assiduously, the earth never being permitted to get dry. The operation may be facilitated by standing the pots in saucers, which will receive the surplus water, and return it to the soil by capillary action.

*In Glasses.*—The glasses should be chosen of an aperture sufficient

November.

to hold the bulb securely, so that the water in the glass may wet the base of the bulb only. Rain or river-water should have the preference; and a pinch of salt thrown into it will prevent putrefaction. The glasses should be emptied and refilled with fresh water twice in the course of a month. The water should be exposed to the air for some hours beforehand, so that it may acquire a proper temperature. If green matter forms about the roots, it should be washed off, taking care not to injure the fibres. The bulb may be attached to the glass by a little wire guard, so that it may not overbalance when the leaves or heads of bloom have shot up.

*In Moss.*—This method consists in planting the hyacinths in pots filled with moss, kept constantly moist. When the bulbs put out their fibres, the latter interlace themselves with the moss, and attach themselves thereto, thus enabling us to remove the plants while in full bloom, and to place them in baskets and the like for decorative purposes. The management of the bulbs differs little, if at all, from that in glasses.

**VARIOUS OTHER BULBS.**—The *two* first described modes of culture are equally applicable to all sorts of bulbs, the Tulip, Narcissus, Crocus, Scilla, English and Spanish Iris, etc.

**ANEMONES** require a moist soil; mould and well-rotted dung suit them well if intermixed with a sufficient quantity of ordinary soil. They should be set in at the depth of a couple of inches, and at varying distances, as desired, but not less than six or seven inches apart. In dry weather, in summer, they should be well watered—if possible, in the evenings. Anemones may be planted at any time, but the best is in spring, from February to the end of March, or beginning of April.

**RANUNCULUSES** are cultivated like anemones. They should be in a moist soil, where they get the morning and evening, but not the mid-day sun, and should be liberally watered in dry weather.

### A MODEL WINDOW GARDEN.



**ENCOURAGED** and guided by your delightful work, "Rustic Adornments for Homes of Taste," I have succeeded in enlarging the sphere and improving the tone of my domestic recreations. I have long desired to testify in some way my thankfulness for the immense service your book has been to me and to many of my friends, and it has lately occurred to me that perhaps a sketch of my window garden might be acceptable for the **FLORAL WORLD**. If you will accept it, my obligations will be added to, and I shall again have to be thankful for a friend and benefactor.

The window, it will be observed, is laid out according to the rules given in your work. You say that, for the sake of embellishing the window, we must not exclude the light, and you will see that the apartment is better lighted than is often the case with a bay window, and the usual curtains and blinds. As this window faces west, the

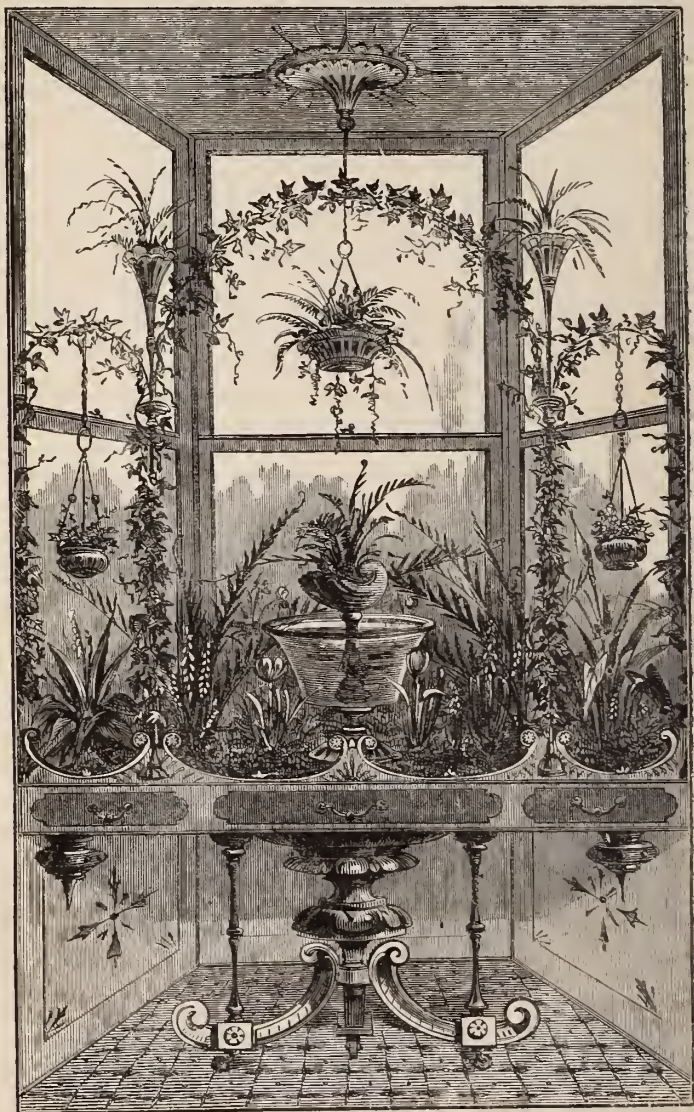
sunshine is allowed to penetrate the room unchecked, and has never proved inconvenient, even on the longest and brightest summer days. Another rule you give, to the effect, that although it is a simple affair enough to employ artificial heat in a window-garden of this kind, it is far better not to employ it at all, because of the incessant care required all the winter, and the great probability of a breakdown. Now, my window-garden does not need heat, and of course I never plant in it any orchids, or other tender plants, that a few cold nights would kill, or injure past recovery. Acting under your advice, I have abolished the heating of fern-cases, and am content with such ferns as will live through the winter without such troublesome aid. I would impress upon your lady readers, who are not prepared to give *all* their time to horticultural toys, and who are aware of the fallibility of servants, to be content with *unheated* plant-cases if possible, for the number of lovely plants that will thrive in them is beyond counting, and the care required to keep up an artificial temperature all the winter is really oppressive. If you begin, say in November, to fill the boiler daily, you must go on until April. If you leave off when the pressure is very severe, say in January, you will probably lose all your plants, even if they are quite hardy, because the employment of heat will have kept them in a state of activity instead of rest, and a severe frost finding them unaided will effect their ruin. There are many other reasons for the abandonment of any method of heating indoor plant-cases, but it will suffice, I hope, that I have mentioned those which require emphasis.

My bay-window is fitted in a very simple manner. It consists, in the first instance, of a series of zinc trays eighteen inches wide, and the same in length, the depth being one foot. These fit closely together, and are completely hidden by an ornamental skirting of rosewood, which can be removed in one piece, as it is attached to a front of deal. The zinc trays are all freely pierced for drainage, and they rest on thin slips of wood on a slab of slate, which in its turn rests on the sill and the central support. The furnishing consists of a combination of pot plants with plants which are naturally rooted in the zinc boxes. Thus in two of the side-boxes small-leaved ivies have long been established, and form a most elegant tracery on iron wires, the two main supports to the trellis being fitted with glass trumpets removed from a table decoration, and fitted into a socket, so as to be movable when required. In these I generally plant fine-leaved ferns, and as soon as they begin to decline in beauty, I take them out, plant them in the fernery, and refurnish the trumpets with fresh plants.

In the boxes which are reserved for pot plants, I put chopped moss only, packed closely round the pots, and as I keep the whole surface covered with living lycopodiums, which are rooted in the boxes containing earth, I have but to lift the lycopodium gently when changing the pot plants, and then replace it, to afford a living, lace-like covering. I obtain from the gardener some good fern compost, consisting of fibrous peat chopped up with silver-sand, and I find that this will grow any plant, from an early tulip to the most delicate fern or lycopodium. When my pot



plants have declined in beauty, I return them to the gardener, and obtain from him others in return, always securing *pairs* if possible. When I made the drawing which accompanies this letter, I



A MODEL WINDOW GARDEN.

was unfortunate in having a caladium on one side, and a small agave on the other, which, as will be seen, do not exactly correspond. I find *Dracænas*, *Yuccas*, *Beaucarneas*, *Agaves*, *Bambusas* and *Rho-*



deas admirably adapted for the purpose, if not too large, and almost all kinds of Ferns are suitable.

I am not thoroughly satisfied with my garden even now. If I could begin again I would admit light from above as well as at the sides; I would have wooden instead of zinc boxes, and I would have the window-frames made to slide up and down easily by means of cords and pulleys within the room.

JULIET.

## USEFUL PLANTS AND FLOWERS FOR WINTER DECORATION.

BY CHARLES CLARK.



AS the winter season comes upon us, with its dull and cold weather, and bare flower-beds and borders, we appreciate more than ever the flowering and other ornamental plants grown under glass. But it must be confessed that those subjects adapted for winter decoration are not made the most of in gardens where the conveniences for their cultivation exist. Although it is a common occurrence, during the winter, to inspect conservatories containing no flowering or berry-bearing plants to light up the sombre masses of foliage produced by the collection of summer flowering plants, there is no lack of subjects which can be brought into use at that season, if we take the trouble to examine the list of flowering plants and berry-bearing shrubs. Some amount of convenience and skill and patience to grow them are, of course, required; but nevertheless it is matter for regret that we seldom see these seasonable plants and flowers grown in sufficient quantities to make a display of any importance. Many of the plants which I shall name in the course of these remarks are well known and justly admired for the ordinary purpose of decoration, but still I have seen but few attempts to grow them for the special purpose I shall mention, and for which they are so admirably adapted. I therefore propose to name the best of the plants and flowers which can be had during the winter season, stating some of the uses to which they are adapted, with some account of their cultivation.

I shall first place on the list the berry-bearing *Solanums*, such as *S. capsicastrum* and *S. pseudocapsicum*. These are as easy to grow as geraniums. The only cultivation they require is to pick off all the berries in the spring, and then harden them off prior to being planted out in a rich moist piece of ground, towards the end of May. After this, water occasionally in dry weather, and keep them free from weeds. Towards the end of the next September, carefully lift them, and pot them in as small pots as possible, using sandy soil; then place them in a cold frame or pit for a fortnight, keeping them rather close and shaded during bright sunshine. Afterwards remove them to an airy shelf in the greenhouse, where

November.

they may remain for the winter. The result of this treatment should be plants in full vigour, and loaded with bright large berries at Christmas. The purposes for which they can be used in the way of decorations are various. A well-grown, nicely-furnished specimen makes an admirable subject for dinner-table decoration, and cheerfulness may be promoted by placing a few plants in conspicuous positions about the house, and especially in the reception rooms. If a plant or two can be spared, they cut up admirably for filling flower-stands and vases. I once saw a few sprigs used in filling a vase, in conjunction with some fronds of ferns; and the effect was very pleasing. But, to my mind, the *Solanums* are never more effective than when grown as standards about two feet high. To do this, training must commence with a young plant, and all the side shoots be nipped off from time to time. About the third year they begin to form nice round heads. As they get age they make very telling objects, as the habit is much more graceful than when grown as bushy plants. Many growers complain of the frequent attacks of green-fly. This is generally the result of a starved condition of the plants, and an insufficiency of fresh air.

The next subject I shall deal with is the *Poinsettia pulcherrima*. This is, without doubt, the finest gem of the season, for, besides being very beautiful for the dinner-table in its entirety, it is also a lovely subject for cutting up for the filling of vases, etc. The most beautiful effect that ever I saw made with this plant was by a lady of rare taste in these matters. It was in this way: two pans of close-growing *Lycopodiums*, about twenty inches over, were selected from the fernery. They were well furnished, as no part of the pan was visible. In the centre of each pan was placed a *Roman Narcissus* in full flower. This was encircled by a broad band of the *Poinsettias* from cut flowers, the centre being the highest, and the following rows decreasing in height towards the outside; and round the edge of the pan was placed a ring of the *Helleborus niger*, or Christmas rose, fully expanded. The effect was rich and beautiful in the extreme; the contrast between the flowers and the mass of green beneath them was very striking. The *Narcissus* was the only subject which interfered in any way with the *Lycopodium*, as that was inserted with its bulbs and roots attached. But the others were used as cut flowers, and were easily fixed in the soil of the pan without interfering seriously with its occupants. The *Narcissus* and *Helleborus* were the first to require renewing; the *Poinsettia* kept fresh and beautiful for more than a fortnight; the only attention it required was to have just the base of each spike cut off every other day, to allow them to imbibe moisture more freely, and again inserted in the soil, giving only as much water as was required to keep the *Lycopodium* alive.

The *Lycopodiums*, of course, suffered considerably from the constant interference attending the changing of the subjects, as well as from the dry air of the room. But they soon recovered when transferred to their old quarters. The position of the pans when dressed was on each side of a camellia in full flower, upon a side-board in the front hall, which was heated by a coil of hot-water

pipes. I must leave the reader to guess what the effect was; my own conviction is, that I never, under any circumstances, have seen the Poinsettia used so effectively as in this instance, impossible as it is to place them where they would not please even an indifferent observer. I have described the above manner of using them for indoor decorations, because it is likely it may be the means of suggesting to the minds of some of our fair readers, if not exactly the same, some similar means of using them for their own homes. A similar effect might be made without the Lycopodium, by using wet silver sand and some nice green moss from the woods or banks instead; and in the place of the Hellebore and Narcissus, white Tulips may be had: many have such varieties as Queen Victoria forced for Christmas. The Poinsettias may be also grouped in pots, or placed singly in any conspicuous warm place about the house, for wherever they can be seen they are sure to win admiration. They are properly stove plants; they therefore require warmth, and to be excluded from cold draughts.

Perhaps the most telling object for pot culture of the berry-bearing shrubs is *Crategus pyracantha*; but few people take the trouble to do it well in pots. It is nevertheless a fine subject for winter decorations. Its beautiful coral-like berries are usually produced in such masses as makes it desirable to have it largely grown by those who wish to promote variety and good taste in indoor decorations, either in the conservatory or in the house.

Next to this should be placed the varieties of *Skimmias*, especially such sorts as *S. Reevesii* and *S. oblata*: these are nice-habited plants when well-grown, and may be had with a goodly number of berries upon plants eight to ten inches high; but the larger the plants the better the effect. They are easily grown in a greenhouse temperature during winter. This does not exhaust the list of berry-bearing plants, for we have the pretty *Rivina humilis*, with its bright red berries, as well as the many varieties of the useful *Aucuba Japonica*; and those well up in stove-plants may also have *Ardisia crenulata*; while the shrubberies ought to furnish the common *Euonymus Europæus*. For more seasonable flowers we have the Chinese *Primulas*, *Mignonette*, *Chrysanthemums*, *Winter-flowering Carnations*, as well as *Camellias*, *Cyclamens*, *Euphorbia Jacquinæflora* and *Thyrsacanthus rutilans*.

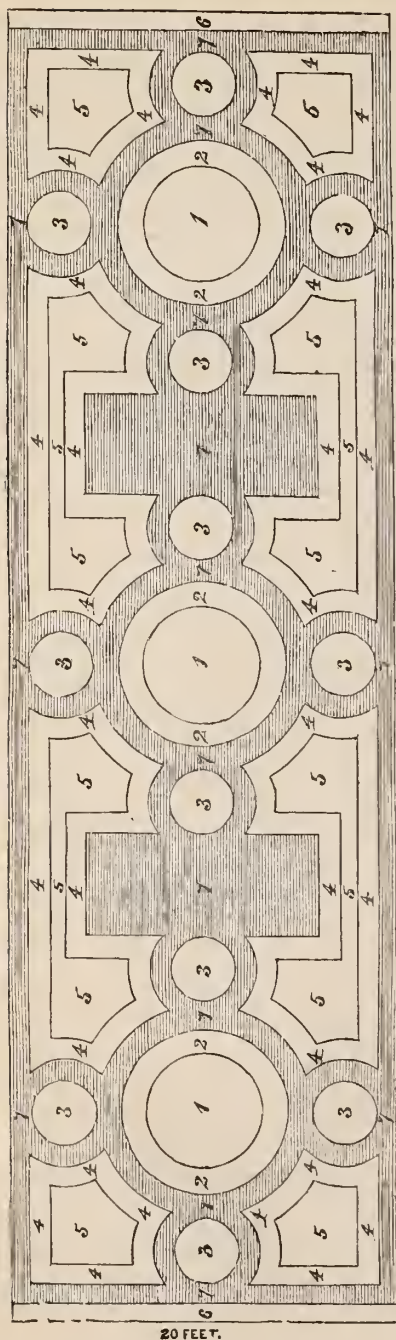
## PANEL FLOWER BEDS.

BY A. DONALDSON,

Head Gardener to the Right Hon. Lord Chesham, Latimer, Chesham, Bucks.



PANEL flower beds and borders are so thoroughly attractive when the plants are arranged with a due regard to height and the colour of the leaves and the flowers, that I send herewith a sketch and a description of a design much adopted with such success at Latimer. The illustration will, I have no doubt, be of considerable service to a large



PANEL FLOWER BED.

number of the readers of the *FLORAL WORLD* at this season of the year, as they should be now, unless it has been already done, busy completing their arrangements for next year. It is very important to determine upon the manner in which the plants employed in the embellishment of the flower-garden are to be arranged before a few weeks previous to their being planted. This is not only necessary for the purpose of propagating a stock of the plants required, but for affording more time for considering the arrangements before determining upon them. When this matter is put off until the last moment, it is seldom that satisfactory results are obtained, for the planter has but little time to make the arrangements, and, moreover, is compelled to plant in beds according to the stock of the various kinds of plants he may have happened to propagate.

The style of planting here portrayed deserves every possible encouragement, for it is not so very difficult to adopt, and it is certainly unsurpassed in effectiveness. The sketch represents a border twenty feet in width and seventy feet in length, and runs parallel with the north side of our flower-gardens. It has given great satisfaction to my employers, and was much admired by all their friends who visited Latimer during the season, when it was at its best. By none of the visitors was it more admired than H.R.H. the Princess of Teck. The front of the border rests upon a wall three feet and a-half above the general level of the flower-garden, and from the



front to the back of the border there is a rise of five feet; so that, seen from the drawing-room windows of the mansion, it had a grand effect. The planting was as follows:—No. 1, Indian Yellow Geranium; 2, *Centaurea candidissima*; 3, Crystal Palace Gem Geranium; 4, *Dactylis glomerata*; 5, Mrs. Pollock Geranium; 6, Cloth of Gold Geranium; 7, *Coleus Verschaffelti*. The flowers were all picked off the geraniums with the exception of Indian Yellow. The plants were all strong when turned out in June, and there were no less than two thousand employed.

## CONSTRUCTING AND PLANTING VINERIES.

### IN TWO PARTS.—PART I.

BY A KENTISH GARDENER.



THE season of the year being now at hand when houses for the cultivation of the grape vine are usually constructed, I purpose offering a few suggestions on the subject, which are likely to be of assistance to the amateur and young gardener. In doing so, it will be necessary to deal more fully with the details than may appear desirable to the practical man, but it must not be forgotten that it is mainly upon the manner in which the minor details are carried out that the amount of success depends, and that to deal with generalities only, would really serve no useful purpose. First, then, as to the construction of the houses.

A south aspect is eminently adapted for vineries which are not started until February. But for early houses, a south aspect is not so well adapted as one a point more eastward; for this reason, the house that stands a point to eastward secures earlier in the day the sun's influence, when our dull, dark November climate admits of its penetrating the dense fogs and mists which then usually abound. By securing the sun's influence upon the house as soon as it is sufficiently risen in the horizon to distribute its welcome rays, the cultivator is enabled to give air early in the day, to dispel the stagnant atmosphere enclosed in the house, which everyone knows is essential to the health of the vines. As most members of the vegetable world succeed best in proportion to the amount of light supplied them, the vine being no exception, we can readily understand the importance of so placing an early vinery that it may have the full benefit of all the sunshine that it is possible to secure at a time of year when our climate only gives us a limited supply of daylight. For later forced grapes a south aspect is admirably adapted, and so it is for those not forced at all; but it is wrong to suppose that even late grapes cannot be grown on eastern aspects. All they require is a very light constructed house, and a very well-regulated system of air giving; that is to say, to open early in the morning and shut up early in the afternoon: as, for instance, houses facing south-east will bear shutting

up at 3 p.m., while on a south aspect 4.30 or 5 p.m. will be soon enough.

The walls should not be less than nine inches thick; fourteen inches would be better for the back wall of a large house, or range of houses. For late houses, the front wall should be on arches, that the roots may run both inside and out; but for early work the border should be entirely inside the house, and the roots confined to its dimensions. Where there are sliding lights on the roof, the back wall should be carried eighteen inches above the roof, as a sort of parapet. This affords great shelter from the north winds when air is given by the top lights; it also breaks off the rain, and is a protection against a sudden storm.

A proper drainage for the border and floor of the house is also most important, as well as to take away the water from the roof. But the roof-water should, in the first instance, be conducted into a tank or cistern inside the house, to be used in watering the borders and syringing the foliage, an overflow being provided from the tank to the drain, to take away all superfluous water, for which there should be a gradual fall to the outlet, that there be no impediment to obstruct the water in its course away, as stagnant water is fatal to the roots of vines, and promotes shanking, mildew, and other disorders.

If it is intended to start the house early, the roots must be all inside, and the border for the most part covered with a wood trellis, so that when the vines have the necessary attention, there may be no treading upon the border, which tends to render the soil impervious to air and water. These trellises may be removed after the grapes are thinned, and the vines require less attention, except a line of them through the centre, or where there is most traffic, as the border will be all the better for not being covered up longer than necessary. If the roots are partly inside and partly outside, then a wood trellis to walk upon as a pathway will suffice, taking care to fork up lightly any footsteps that may from time to time be made upon that portion of the border not covered. A wood trellis is to be preferred to either a stone or tile paving, as it admits of a more even distribution of air and water to the roots.

For houses of all sizes, especially those in which the earliest crops are to be produced, hot water is the best mode of heating; but for a small single house, intended for the crops to be grown with but little fire heat, a flue is not to be despised. For a house thirty feet by twelve a flue will answer every purpose, and I should advise that a flue be used, unless there are other houses in close connection with it. In this last case a saddle boiler, with a sufficient quantity of four-inch piping, should be supplied. The quantity of piping required to heat a house of a certain size depends entirely upon the time it is intended to commence forcing the vines. For a house thirty feet long and twelve feet wide, four four-inch pipes will be necessary if the vines are started in November; but if forcing is not commenced until the first of March, then two four-inch pipes will do.

In the foregoing remarks preference has been given to inside

borders for very early forcing houses, because they are more simple than heated borders in making, and of less expense, and when properly managed they answer every purpose. A good chambered and properly heated outside border, with every requisite appliance for protecting the border from wet and cold weather, is, in some instances, better than an inside one; but borders of this sort add considerably to the expense, and require more attention than an amateur would be able to give them.

The shape of the vinery is not, so far as the production of the crop is concerned, a matter of such great importance as it may appear, for good crops can be produced in both lean-to and span-roof houses. For very early forcing lean-to houses have considerable advantages, as the back wall affords most efficient protection from the keen north winds, which are so very trying during the winter and early spring. But for crops ripening from the beginning of July to the end of the autumn, houses with span-roofs are preferable, for the vines are more fully exposed to the light and air, and in certain cases they are less expensive. For example, it costs nearly as much to build the back wall as it does to construct the other part, exclusive, of course, of the ends, so that by building a span-roof the cost of the back wall is saved, and a double house had for a very trifling additional outlay. Front lights give vineries a more lofty and noble appearance, but they are quite unnecessary, and as they add so materially to the expense, they may well be dispensed with, and the lower end of the sashes made to rest upon the front walls. The next width for a lean-to house is about twelve feet, and of a span-roof about twenty feet. Good grapes may be produced in some un-heated structures, but it will be found much better to have the houses heated, as much for the purpose of keeping the grapes after they are ripe, as for assisting them in unfavourable weather before they attain maturity.

For all early vineries, whether large or small, no less an angle than forty-five degrees will prove satisfactory, and even fifty is not too much, especially in a low or shaded situation, as it is at all times desirable to secure as much of the sun's influence as the season of the year will give us. An angle of forty will serve for those vines that are allowed to break naturally, as by the time they commence to grow the sun attains a sufficient height in the heavens to enable it to act with such force upon the house as will suffice for the free growth of the vines.

As regards the construction of the roof of the house, there is none to surpass that which allows plenty of air being given at the apex; I prefer the sliding lights as offering the least obstruction to the escape of heated air. Those with fixed roofs, with ventilators in the back wall, are the next to be recommended, although they are not so well adapted for very early forcing, as there is nothing to check the ingress of cold air, like those houses which have a parapet carried above them, and the lights to raise or slide. The worst of all descriptions of houses which I have dealt with for vineries are those with roof ventilation. Coming now to the question of front ventilation, it remains to be said that it is advisable to provide it either in

the form of a sash or boarded ventilator. For training the vines, and supporting the branches carrying fruit, wires must be provided on which to train the rods; these should go lengthways the house, and be at least fourteen inches from the glass, and about ten inches between each two wires.

## ORCHARD HOUSES.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



THE failures which occur so frequently in the cultivation of the choicer kinds of fruits in the open air, are sufficient to convince the most sceptical that to make sure of a crop of peaches or nectarines in any one year the aid of glass is necessary. It is of little consequence that the trees should have had the most skilful management during the summer previous, and that the wood has been matured, and the flower buds properly developed, if the weather is not favourable at the time the trees are in bloom, for one night's frost is quite sufficient to destroy the bloom and render the previous season's work of no avail, so far as that season's crop is concerned. If it was an unusual occurrence it would be hardly worth even training them, for the loss of a crop at long intervals would not matter much, but it is otherwise, and cultivators begin to look upon the gathering of a good crop of wall-fruit as most essential. How many failures of wall-fruits there have been within the last ten or fifteen years most of the readers of the FLORAL WORLD well know by most unpleasant experiences, and no argument of mine is required to show that their cultivation is of the most speculative character, and that those who engage in it must be prepared for drawing a very large proportion of blanks to the prizes obtained. With the aid of glass the cultivation of these fruits is attended with the greatest degree of certainty, provided that an ordinary amount of skill and attention is bestowed upon the trees. Attention the trees must have, for when under glass they are deprived of the rains and evening dews, which are of such material aid in keeping the foliage free from dust and other matters, and in checking the ravages of the green fly, red spider, and other pests which attack them. The frequent use of the garden engine or syringe will suffice for maintaining the foliage in a clean state, and in keeping insect pests in subjection the cultivation will be placed at an advantage, for by closing the ventilators and burning a little tobacco paper in the house, these pests can very soon be made short work of. The cost of managing trees under glass will be greater than of those grown against open walls, and if the crops could be insured every season the balance would be on the side of the latter; but, as it frequently happens that the trees have from two to

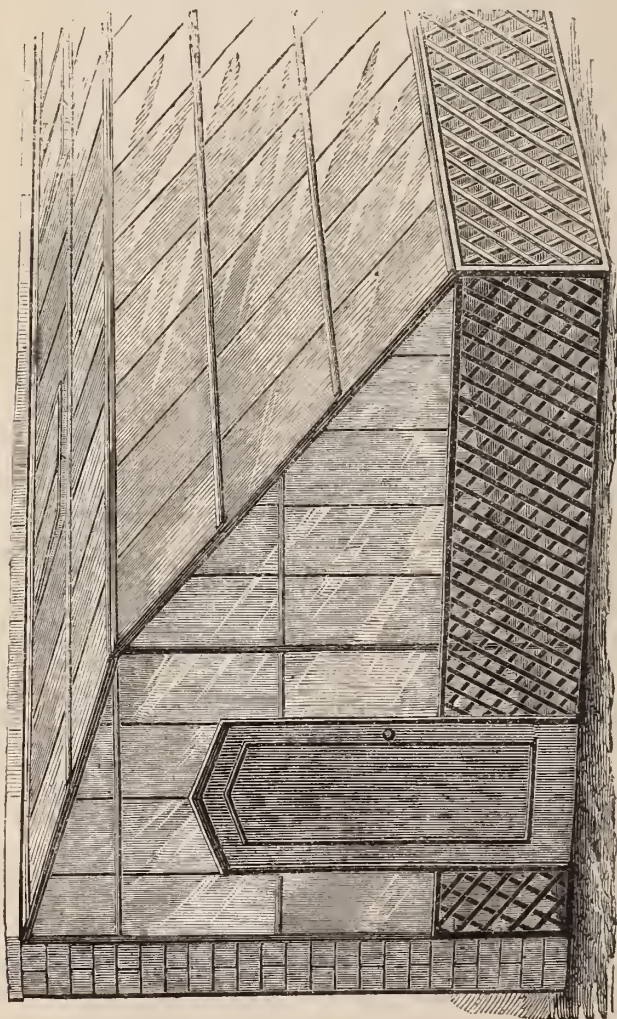


three years' attention before producing a crop, the cost of the production of a given quantity of fruit is decidedly in favour of those grown under glass. This is taking a purely commercial view of the case, but in many households fruit is a prime necessity without regard to the cost, within certain limits, of production, and in this case it is impossible to urge too strenuously the importance of providing sufficient glass for the protection of the trees.

In speaking of the value of glass for the protection of fruit trees, it must be understood that the remarks do not apply to heated structures, in which the fruit comes to maturity some time previous to that from trees grown without protection, but to houses unheated, or in which sufficient fire-heat only is used for keeping out frost or drying up superfluous moisture in dull damp weather. Unheated structures are generally known as orchard-houses, but in some quarters they do not enjoy such a large share of popularity as they deserve, because it is thought that the trees cultivated in them must necessarily be confined to pots. That impression is, of course, erroneous, and those who are anxious to obtain the heaviest crops of fruits possible, with a minimum amount of labour and attention, must plant out the trees in well prepared borders. Pot trees are very well when the cultivator can devote the whole of his time during the summer season to them, but for the amateur with but little spare time on his hands, they are quite useless, and their adoption will only end in vexatious disappointment. They are not desirable for those even who can devote the whole of their time to looking after them, because they can obtain with the same labour and skill much better results from trees planted out.

As regards the designs of orchard-houses it may be safely said that the more simple they are in construction, the better will they be adapted for the purpose for which they are intended. They may be heated or unheated, as may be determined by the cultivator; but, unless he has a considerable amount of practical experience, the safest course will be to have no heating apparatus, for it is a very easy matter to injure the crop by an injudicious application of fire-heat. The "Rustic Orchard-house" here figured, which has been designed and manufactured by Mr. W. E. Rendle, 53, Westminster Chambers, Victoria Street, affords a good model of an orchard-house in which the trees are not to receive any assistance from artificial heat. It is, also, comparatively cheap, as the expensive sash-bars of wood are dispensed with, and horizontal metal sash-bars substituted, which have the additional advantage of allowing the glass to be removed with the greatest facility when it is desired. Abundant ventilation, so very important in the cultivation of orchard-house trees, is secured by an open lattice-work of wood, as here portrayed, in lieu of the usual wall of bricks or wood. The openings of the lattice can be closed with a piece of canvas when the trees are in bloom, and, in fact, until the season is so far advanced, that the young fruit is not likely to be injured by the morning frosts. At all other times, especially during the winter and early spring, previous to the expansion of the flowers, the openings should be left open; for, at the last-mentioned period, the trees require retarding

as much as possible. One of the greatest errors that is committed in the management of orchard-houses is, to keep the ventilators closed during the winter; for, by so doing, the trees are forced into bloom by the bright weather we usually have very early in the year, and before their proper time; and the flowers are, in consequence,



HENDLE'S "RUSTIC ORCHARD-HOUSE."

injured by the frost. It is to this cause that the failures which we sometimes hear of are due. But, when the trees are kept back in the manner here suggested, so as to bloom at the same time as those on the open wall, the frosts will not be of sufficient severity to do any harm to the flowers or young fruit. The top ventilators should also

be opened freely at all times, excepting in frosty weather, or later in the season, when it is desired to accelerate the maturation of the crop by keeping the house rather close. Although it is suggested that the lattice-work be left open at all times, excepting in the spring, it is proper to remark that it may be partly closed during the summer months for the above-mentioned purpose. A free circulation of air must, however, be maintained, or the foliage will be quickly attacked by red spider, and otherwise injured.

In planting a house like the one here represented, I would suggest that peach and nectarine trees be planted at the back, for training over the back wall; and, in front, a double row of pyramidal or bush plum, apricot, and cherry trees. These must not exceed three or four feet in height, for the trees against the back wall will not do much good if deprived of a fair share of light. The capabilities of the house are not yet exhausted, for, at a distance of eight feet apart, grape-vines for training up the roof may be planted. The houses are so light, that the vines will be beneficial rather than otherwise, provided the lateral growth is kept near to the main rod, and not spread out as in an ordinary vinery. The cultivator will thus be able to obtain a great variety of fruit; and, as some attain maturity before the others, a succession extending over a considerable period will be secured.

Healthy trees must be selected, and the purchaser will do well to buy them early in the season, before the best trees have been purchased. Previous to planting the trees, the soil inside, and to a distance of several feet outside the house, must be broken up to a depth of not less than two feet. If it has been under crop several years, a liberal dressing of maiden loam, such as that obtained from the surface of a common or road-side, will be highly beneficial in promoting a healthy development of growth. The application of manure, when the trees are newly planted, is not desirable, for it encourages a luxuriant growth, instead of promoting fruitfulness; and the trees can always be assisted with top-dressings of manure, after they reach a bearing state, if they show signs of exhaustion. If the soil is not properly drained, lay a drain about three or four feet below the surface, down the middle of the house, and place a good layer of rubble over it, to secure its perfect action.

For further information respecting the "Rustic Orchard-house," I must refer my readers to the inventor.

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USEFUL DISINFECTANTS FOR COUNTRY HOUSES.—Mr. E. C. Stanford relates in the *Pharmaceutical Journal*, the results of some experiments he has lately made as to the relative value of certain disinfectants. From these experiments it appears that the most powerful disinfectant is chloride of iron; the cheapest in proportion to its power is the fused chloride of calcium, a substance which is a waste product at all alkali-works. It should be used in the form of solution containing 25 per cent. of the salt. For deodorising sewage, chloride of calcium so employed was found four times as efficacious as chloralum, while it can be produced for half the price.



## THE WINTER MANAGEMENT OF AURICULAS AND PANSIES.

BY JOHN WALSH.



THESE two classes of hardy flowers are now so generally cultivated, and the latter more frequently in pots than it was a few years since, it has occurred to me that a few hints on their winter management would be of some service at this season of the year. It is not necessary to say much upon the subject, for a few words will suffice to explain the principal points for the cultivator to bear in mind. Although the suggestions that will be made will be brief, it is to be hoped that their importance will not be under-rated; for it is frequently owing to a want of knowledge of the more simple details that the cultivator does not succeed with these subjects so satisfactorily as he would wish. Many cultivators also lose a considerable portion of their stock during the winter months, through having a wrong impression of the requirements of the plants during that season.

One of the most essential points in the winter management of both auriculas and pansies is, to steadily bear in mind that they are nearly hardy, but require protection from the excessive humidity characteristic of the English climate which is more dangerous than severe frosts. Protection from severe frosts is needful, but it will be less likely to injure the plants when they are kept in a comparatively dry condition, than when they are saturated with moisture. The cultivator must, therefore, aim at keeping the soil in a moderately moist condition only, the foliage quite dry, and the atmosphere in a sweet and healthy condition, by ventilating the frame freely when the weather will permit. A good pit is, of course, necessary; but whether it is constructed of bricks or wood is of little consequence. The main points are, to have it of a sufficient height for the plants to be raised twelve or eighteen inches above the general level of the surrounding soil. This is one important step in preventing any stagnant moisture remaining about them; and the next step is, to secure a system of ventilation that will admit of the frame being ventilated in rainy weather, if it is so desired, without exposing the foliage to any risk of being wetted. This is not a very difficult matter—in fact, it is so simple that if it was not for the fact that it is so seldom adopted, I should feel compelled to apologize for mentioning it. The system consists in having openings in the wall or wood-work, on a level with the pots as they stand upon the bed of ashes or the stage. In wooden frames, a nearly continuous opening, about six inches in width, which can be closed with a shutter, should be provided, both at the back and front. In the case of brick pits, openings nine inches in width and fifteen inches in length should be made, both in the front and back walls, at a distance of three feet apart. These may be closed with either wooden or slate shutters; but as the former is the least expensive, it will, no doubt, be the most generally used. These ventilators must be opened on all



favourable occasions—that is to say, open them whenever the weather is dry, and the external air not heavily charged with humidity. It will do no good to open the ventilators during the existence of fogs, but during rains of short continuance, and light frosts, there will be no necessity for closing them.

Pansies require more water than auriculas at all seasons of the year; but it is essential to avoid the too liberal use of the watering-pot in the winter management of both classes. The soil must be allowed to become rather dry before a fresh application of water, and then just sufficient to moisten the whole of the ball will be required, and no more. Not a drop of water ought to be allowed to touch the foliage, or be slopped about on the surface of the bed; for the humidity which will arise from the water that will drain from the pots will be quite sufficient for the cultivator to contend with. A favourable opportunity for watering is also essential, and under exceptional circumstances only should the plants be watered at any other time than in the forenoon, and then only when the weather is such that the lights can be taken off altogether for a few hours afterwards. If, by any chance, there is a lodgment of water in the hearts of the auriculas, remove it by tilting the plant bottom upwards—taking care, of course, to prevent its falling out of the pot, by placing one hand on the surface of the soil.

The removal of decaying foliage is also most important, and this must be effected in such a manner that the stems are not in any way injured, for injuries which would be of trifling importance at any other season of the year will probably result during the winter in the death of the plants. Mildew is the chief enemy with which the pansy has to contend during the winter months, and the best preventive is a pure and dry atmosphere and a free circulation of air through the foliage; and the best cure is flowers of sulphur. The latter should be dusted over the foliage immediately the mildew is apparent, for it is of little use to apply the remedy after the plant has been, practically speaking, destroyed. If by chance a portion of the growth has become badly infected, remove it altogether. Sometimes green-fly will attack auriculas, and do a considerable amount of mischief, if not checked. The simplest way of dealing with them is to brush them off with a small camel's-hair brush dipped in tobacco water. The latter can be made by steeping a pinch of tobacco in a small quantity of boiling water. For ordinary collections it is not desirable to make more than a quarter of a pint at a time, as it is more powerful when used in a fresh state, and making it is only a work of a few minutes.

Those who require information on the general culture of auriculas and pansies must refer to the indices of back volumes, for past issues are rich in information; and my intention on the present occasion being simply to direct attention to a few points of vital importance, yet likely to be overlooked by the inexperienced cultivator.

## EARLY TULIPS FOR THE FLOWER GARDEN.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



HERE ought to be a word said about early tulips, for the time has come for planting them, and those who plant them properly will be well repaid. Some of the catalogues advise purchasers to plant early, but that is a mistake, for if the work is done before the month of November it will be quite early enough. If you plant the bulbs at a proper time, they bloom unhurt by the weather, and make a grand display; but if you plant too soon, they come up too soon, and flower too soon, and are destroyed by frost.

Early tulips need none of the peculiar care bestowed upon late tulips grown for exhibition, nor does it cost so much to have a grand collection. A well-drained, deeply-dug, and well-manured loam will grow them finely. If there is any choice of soil, there is none so good as a sandy loam; if very sandy, it will be suitable, and much more suitable than a loam inclining to clay. But in any case, if the soil will grow flowers at all, it will grow early tulips, for they really are very accommodating; and knowing what suits them best, the cultivator will do all in his power to make his soil approximate as nearly as possible to the nature of a rich sandy loam. Sandy grit, rotten dung, and leaf-mould are the sort of materials with which to temper and improve a stiff clay; and good turfy loam, if it can be had, is the best material wherewith to give solidity to a soil consisting for the most part of sand; but here, again, rotten dung will play its part admirably.

The early tulips comprise many varieties of very distinct and brilliant colours, and these distinct colours may be used with admirable effect in planting a geometric garden. Amateurs who like variety, and have only borders in which to plant, cannot do better than have at least half-a-dozen bulbs of each variety, and plant each half-dozen as a clump, so as to have along the line of the border bold clumps of yellow, purple, white, red, etc. In beds planted ribbon-fashion, the clumps may be grouped in colours, so as to produce distinct lines, though in a good ribbon no one would expect to find many sorts, and the best ribbon would be made with only as many sorts as there were colours wanted, because though several varieties may be nearly alike in colour, they would differ in height, and some would bloom a little earlier or later than the rest. In beds it would be well to restrict the number of sorts, so as to produce rich, solid, and decisive effects. A mixture pleases some people, and in this case the heights to which the flowers rise is the only matter of serious importance, the dwarfest being, of course, suitable for the outside rows, and the tallest for the middle of the bed.

There are over a hundred varieties of early tulips in cultivation. It will be of service to many readers, in selecting varieties, if a few

that may be considered the most distinct and useful for a display on a moderate scale are enumerated.

WHITES.—*Pottebakker, Queen Victoria, Reine Blanche, Cour de France, Standard Royal, Grootmester.*

YELLOW.—*Pottebakker, Canary Bird, Golden Prince, Thomas Moore, Grand Duc.*

SCARLET.—*Vermilion Brilliant, Van Thol, Feu d'Aur.* s.

CRIMSON.—*Couronne Pourpre, Royal Queen.*

ROSE.—*Monument, Proserpine.*

LILAC.—*Grisdelin Aimable, Cottage Maid, Archus, Lac Obscur.*

Among the double, the following are exceptionably good :—

WHITE.—*Belle Alliance, La Candeur, Couronne des Roses.*

YELLOW.—*Admiral Kingsbergen, Arlequin, Gloria Mundi, Grenadier, Peony, Yellow Rose.*

SCARLET.—*Rex Rubrorum, Tournesol.*

CRIMSON.—*Couronne Pourpre, Imperator Rubrorum, Velvet Gem.*

DARK.—*Lord Wellington, Molière.*

## LOOKER'S ACME FRAME IN THE KITCHEN GARDEN.



FROM what you said of the value of "Looker's Acme Frame" last year, I was induced to purchase two fifteen-foot lengths of the three-foot width, and nothing could possibly turn out more satisfactorily. One of the frames was filled with the largest-sized lettuce and endive for use early in the spring, and the other with small lettuce and cauliflower plants for planting out for early summer use. The chairs were raised on two courses of bricks, and the space between the bricks was filled with light soil, partly the refuse from the potting bench. In mild weather the caps were partly removed for securing a thorough circulation of air, and in frosty weather a mat was thrown over them. All the plants did remarkably well, and we had an abundance of lettuce and endive when my friends had none, and we had also a splendid lot of cauliflowers and lettuce for putting out. After they were cleared of the winter occupants, they were used in hardening off bedding plants, and when at liberty from these, one was planted with melons and the other cucumbers. A fair crop of melons was obtained, but the cucumbers bore abundantly, and we had a constant supply throughout the summer. The cucumber grown was Master's Prolific, a variety producing fruit averaging twelve inches in length, very solid, and of excellent flavour. This variety can be strongly recommended for frames, as being far preferable to the larger kinds. I was induced to grow it through seeing it recommended in the pages of the FLORAL WORLD, and I am glad to say that it has turned out first-rate, like other things recommended in the pages of that excellent publication. The melons and cucumbers, of course, required stopping, watering, and syringing, much the same as those grown in ordinary pits, for there

is no kind of structure in which they can be grown without attention. We have just completed the filling of the frames with lettuce, cauliflowers, and endive, and it occurred to me that you would like to know how far the invention bears out the recommendation it received. This is not written specially for publication, but if you think it worthy of a corner in the *FLORAL WORLD*, you are at liberty to use it. I inclose my card, and subscribe myself,

AN AMATEUR.

## GARDEN GUIDE FOR NOVEMBER.

**KITCHEN GARDEN.** — Wherever digging and trenching are required, let it be done without delay; every additional day's exposure of the soil to the action of the weather is a benefit to it; generally speaking, it is not well to manure in autumn, because the winter rains wash the best of it away, but manures should have attention, and this is a good time to clear out the muck-pit, and pile the stuff in a heap, and throw over it a few inches of soil or burnt clay. In dry frosty weather it should be chopped down and turned, and again soiled over to preserve its virtues, and at the same time sweeten it for use. Turf should be stacked, and clippings collected for burning, to make dressings of manure for beds and borders. The general work of the kitchen garden is but a continuation of last month, to which we refer to avoid repetitions. Those inclined to venture speculative crops should sow a few beans and peas. If they get through the winter, they will produce a few early dishes; but there is the risk, not only of severe weather, but of the attacks of slugs and snails, and where these vermin are allowed to riot on the ground, winter sowings have little chance. Broad, well-drained slopes are of great value for winter sowings, and for bedding out lettuce, broccoli, and cauliflower for the winter; and with the help of reed or thatched hurdles for shelter, late and early supplies of vegetables and saladings may be secured, and will always pay well. Turn gravel walks, clean and turn plunging-beds, make a clearance of corners devoted to rubbish, especially where there is an accumulation of old pea-sticks and timber, as it is among such stuff the vermin take shelter, to issue forth in spring and destroy the seed crops, and bring disgrace upon the small birds. Many really bad soils become good soils when broken up deeply, and mixed with a portion of the subsoil, even though that subsoil may be by itself as bad as the other. On deep yellow loams, trenching two spits deep is equal any time to a dressing of manure, and generally of far more importance than any amount of manure. Old garden soils are often sick and sour with manure, but a deep-stirring buries the vermin at a depth at which they perish, and brings into action the fresh untilled earth beneath, with all its dormant powers ready for useful action under the influence of the atmosphere. It will always pay when labour is scarce, to make work for labourers in deep tillage of garden and allotment grounds; the process is



nothing less than a complete renewal of the soil wherever the material exists below for the purpose. Of course, where there is only a thin layer of vegetable earth over hard rock or gravel, the case is different, but very often some of this unpromising material improves the staple when broken and mixed with it.

**FRUIT GARDEN.**—The sooner all bushes and trees to be planted are got into their places the better. In forming new fruit gardens, select first the most noted of the established varieties before seeking after novelties. Perfect drainage of the soil is a matter of the utmost importance in districts where heavy loams and clays prevail; but on hot, chalky, and sandy soils drainage is seldom needed. All kinds of fruits require a substantial, nourishing soil; apples, currants, and gooseberries will grow well almost anywhere, but better on a good loam in a warm climate than on a bleak sand. All stone fruits require a good loam, and on well-worked clay generally prosper. Soils containing calcareous matter are, if of good texture and substance, well adapted for the production of fruit; and in preparing old worn-out soils for fruit-trees, it would be well to add a liberal dressing of chalk or old mortar.

**FLOWER GARDEN.**—Alpines suffer more from wet than frost; choice kinds had best be potted and put in frames, as during January there is usually much havoc committed among alpines on rockeries. The only safe way to keep up a collection is to have duplicates of all the species in pots. Flower-beds not occupied should be deeply stirred and kept rough. The fear of an untidy appearance causes many a flower garden to get sour and full of vermin, whereas the soil should be as thoroughly broken and pulverized as that of the kitchen garden. The beds may be manured now where the positions are comparatively dry, but it will be as well to defer manuring till the spring. If supplies of turf are wanted for next year's potting, get the material in at once, and stack in long narrow ridges like dwarf walls.

**GREENHOUSE AND STOVE.**—The atmosphere should be kept dry and the house scrupulously clean. If the pavement or tiles are green with *confervæ*, wash down with hot brine and a cane broom, both for the sake of cleanliness and health. The sour, damp odour perceptible in houses at this time of year generally proceeds from the growth of minute vegetation in the form of a green slime; and this is very unwholesome, and probably as much a cause of the ailments gardeners are subject to as the frequent alternations of temperature to which they are liable. Plants in a soft state to be watered with great caution, but none to be allowed to flag for want of water. On fine, bright mornings use a little fire-heat, so as to allow of a free ventilation for a few hours. Chrysanthemums will keep the houses gay till after Christmas, when the first lot of forced shrubs, especially azaleas, will come in to take their place. In the conservatory, whatever flowers are at command may be made the most of by judiciously intermixing with them plants possessing characteristic foliage. Hard-wooded plants in the greenhouse must have as much air as the weather will allow, and as little water as possible, as we may soon expect severe frosts. The thermometer should not

descend below 38°. Soft-wooded plants will be subject to mildew if the house is at all damp, and must have fire-heat during foggy as well as during frosty weather. Stove plants in free growth must have fair supplies of water—not so many times a day or so many times a week, but as they want it. Plants that have filled their pots with roots, and are now making new growth or pushing for bloom, will need more than those that have plenty of pot-room, and are not thoroughly established. Plants in the warmest end of the stove will enjoy a moderate amount of vapour produced by sprinkling the floor and pipes. Plants at rest to be kept as dry and cool as possible consistent with safety, and moderately well aired. Mixed stove selections must now be kept rather cool, as growth is not desirable. Keep the atmosphere of the house sweet by giving air on fine days, and be careful to remove dead leaves, mosses, and liverworts in pots, and whatever impedes the circulation of air or engenders unwholesome vapours. All plants approaching a state of repose to have little or no water. Plants in active growth must be watered with caution; let them have enough, but see that they do not stand in pans with stagnant water about their roots, or in wet places in the midst of mildew.

**DESTRUCTION OF ANTS IN DWELLING-HOUSES.**—A correspondent of the *Builder* gives the following particulars of clearing a house of the myriads of ants with which it was infested: “Some years ago, when in business, I let a mansion of importance (which I need not particularize), belonging to a man of title, to a lady of title, whose people discovered what I had not, that the kitchen department in the basement was infested with white ants. The lady declined to occupy it, nor did the owner wish her to do so, until this evil was remedied, which I undertook to accomplish. They abounded in millions, yet, singly, appeared like grains of dust, hardly perceptible without the aid of a microscope, yet in a few minutes coated any article of food with a white appearance. We first tried baits of raw meat, which were speedily covered with them. These we rinsed off in hot water, and relaid. Two men were actively employed for two days in this operation without any apparent diminution of quantity, or affording any trace of their haunts. I then had all the woodwork stripped from the walls of the kitchen, scullery, and larder, where we found abundant evidence, and immediately, not only gave the walls a good dose of fresh hot lime whitening, but also the back of the old woodwork, which was considerably decayed, before it was broken up to be burnt, and afterwards fumigated those places with sulphur for three or four days, to destroy any stragglers. We then coated the brickwork with compo instead of wood panelling, leaving no crevice in the wall or in the joints of the stone flooring, to afford a future harbour; and yet after this they seemed as abundant as ever. Being then convinced that the chimney and fireplace were the only inlets left, I had the jambs and mantel removed, where we found them in great abundance, dosed the whole, even to the rubbish, with quicklime, and then restored all carefully, so as not to leave any crevices or spaces. This was an effectual remedy, and I never heard any complaint afterwards. I have referred to the cost, which I find was £26 15s., and it was accomplished in a fortnight, to the great satisfaction of all parties.”

**AN ANTIDOTE FOR SLUGS.**—A correspondent of the *Gardener's Chronicle* writes: “Some of your readers may care to know, if they do not do so already, that a little carbolic acid, diluted, as usual, with ten times its quantity of water, will attract and kill scores of slugs if it is sprinkled on waste ground near their haunts. No harm is done to the ground.”



## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

### SELECT FRUITS FOR THE GARDEN AND ORCHARD.

#### APPLES FOR ORCHARD PLANTING.

Alfriston, Bedfordshire Foundling, Beefing Striped, Blenheim Orange, Court Pendu Plat, Court of Wick, Dumelow's Seedling, Devonshire Quarrenden, Dutch Codling, Keswick Codling, Fearn's Pippin, Forge, French Crab, Galloway Pippin, Golden Noble, Golden Reinette, Gooseberry Pippin, Hawthornden, Hanwell Souring, Kerry Pippin, London Pippin, Margil, Nonpareil, Norfolk Bearer, Northern Greening, Potts's Seedling, Ribston Pippin, Sturmer Pippin, Sykehouse Russet, Ward's Pippin, Winter Pearmain, Yorkshire Greening.

#### APPLES (DESSERT) FOR GROWING AS PYRAMIDS AND BUSHES.

Ashmead's Kernel, Beauty of Kent, Breddick's Nonpareil, Cellini, Cornish Gilliflower, Cox's Orange Pippin, Early Harvest, Early Nonpareil, Knight's Downton Pippin, Golden Harvey, Irish Peach, Juncating, Hubbard's Pearmain, King of the Pippins, Newtown Pippin, Lord Burleigh, Lord Suffield, Nonsuch, Northern Spy, Reinette du Canada, Ribston Pippin, Scarlet Nonpareil, Waterloo, Wyken Pippin.

#### APPLES FOR VERY EXPOSED SITUATIONS.

(D, Dessert ; K, Culinary.)

Carlisle Codling, K ; Devonshire Quarrenden, D ; Early Julien, D ; Franklin's Golden Pippin ; French Crab, K ; Hawthornden, K ; Kerry Pippin, D ; Keswick Codling, K ; London Pippin, K ; Manx Codling, K ; Margil, D ; Nonsuch, D ; Summer Strawberry, D ; Sykehouse Russet, D ; Tower of Glammis, Yorkshire Greening, K.

#### CHERRIES FOR GARDENS, BEST TWELVE.

Werder's Early Black, D ; Belle d'Orléans, D ; Black Tartarian, D ; May Duke, D ; Black Eagle ; Bigarreau Napoléon, D ; Florence, D ; Coe's Late Carnation, D ; Kentish, K ; Belle Magnifique, K ; Morello, K ; Frogmore Early Bigarreau, D.

#### CHERRIES FOR ORCHARDS.

Early Prolific, Black Tartarian, May Duke, Elton, Buttner's Black, Kentish, Bigarreau Napoleon, Mammoth, Late Duke, Tecumseh.

#### CURRENTS.

*White*—White Dutch. *Red*—La Fertile, Riby Castle, Red Dutch. *Black*—Kentish Hero, Lee's Prolific.

#### FIGS.

*For Walls*—Brunswick, Black Ischia, Brown Turkey, White Marseilles, Castle Kennedy. *For Forcing*—Black Ischia, Brown Ischia, Brown Turkey, White Ischia, Black Marseilles.

#### GOOSEBERRIES FOR DESSERT.

*Red*—Early Red Hairy, Red Globe, Rough Red, Turkey Red, Companion. *Yellow*—Glory of Rateliff, Leader, Yellow Champagne. *Green*—Green Gage, Green Gascoigne, Turn-out. *White*—Queen of Trumps, Hedgehog, White Champagne.

#### GOOSEBERRIES FOR GENERAL USE.

Bright Venus (Taylor's), Crown Bob, Hepburn's Prolific, Ironmonger, Keen's Seedling, Overall, Rifleman, Roaring Lion, Warrington, White Eagle, Whitesmith, Victory (Lomas's).

November.

## GRAPES FOR WALLS.

Early Saumur, Muscat, Muscat St. Laurent, Esperione, Miller's Burgundy, Pitmaston Cluster, Royal Muscadine, Black Hamburg, Chasselas Musqué. The last two require dry borders and warm positions, or they will not ripen their fruit.

## GRAPES FOR COOL VINERIES.

Chasselas Musqué, Foster's White Seedling, Madeira Muscat, Madresfield Court Muscat, Royal Muscadine, Black Hamburg, Buckland Sweetwater.

## GRAPES FOR HEATED VINERIES.

Frankenthal, Muscat of Alexandria, Bowood Muscat, Canon Hall Muscat, Muscat Hamburg.

## GRAPES FOR A LATE VINERY.

Kempsey Alicante, Madresfield Court Muscat, Black Lady Downes, White Lady Downes, West St. Peter's, Muscat of Alexandria.

## NECTARINES.

*For Walls*—Balgowan, Early Newington, Elruge, Hardwicke, Oldenberg, Violette Hative, Pitmaston Orange. *For Orchard Houses*—Elruge, Pitmaston Orange, Violette Hative.

## PEACHES.

*For Walls*—Bellegarde, Early York, Grosse Mignonne, Crawford's Early, Royal Charlotte, Royal George, Noblesse, Barrington, Walburton Admirable, Salway. *For Orchard Houses*—Bellegarde, Early Grosse Mignonne, Royal George, Grosse Mignonne, Noblesse.

## CHOICE PEARS FOR STANDARDS OR ORCHARD PLANTING.

Citron des Carmes, Jargonelle, Thompson's, Williams's Bon Chrétien, Comte de Lamy, Ne Plus Meuris, Forclee, Winter Nelis, Gilgil, Seckle, Swan's Egg, Beurré de Capiaumont, Autumn Bergamot, Napoleon, Beurré d'Arenberg, Beurré d'Amanlis, Louise Bonne of Jersey, Fondante d'Automne, Easter Beurré, Catillac, Bellissime d'Hiver, Aston Town, Windsor.

## CHOICE PEARS FOR BUSHES AND PYRAMIDS.

Alex. Lambre, Bergamotte de Esperen, Beurré Clairgeau, Beurré d'Arenberg, Beurré d'Amanlis, Beurré de Rance, Eastern Beurré, Beurré Goubalt, Bon Chrétien, Broom Park, British Queen, Conseiller de la Cour, Délices de Jodoigne, Doyenné Boussoch, Doyenné Defais, Doyenné d'Été, Duchesse d'Angoulême, Eyewood, Fondante d'Automne, Forelle Glou Morceau, Huyshe's Victoria, Jargonelle, Louis Bonne of Jersey, Monarch, Prince Albert, Suffolk Thorn, Winter Nelis, Yat, Zéphirin Grégoire.

## CHOICE PEARS FOR A WALL.

Bergamotte d'Esperen, Bezi Mai, Beurré Diel, Beurré Bosc, Beurré Goubalt, Broekworth Park, Chaumontel, Marie Louise, Knight's Monarch, Ne Plus Meuris, Haeou's Incomparable, Thompson's, Graham's Autumn Nelis, Glou Morceau, Jargonelle, Winter Nelis, Josephine de Malines, Easter Beurré, Doyenné d'Été, Bon Chrétien, Louis Bonne of Jersey, Beurré Rance, Alexandre Bivort, Pitmaston Duchesse d'Angoulême.

## PLUMS FOR DESSERT.

July Green Gage (*wall*), Bonne Bouche, Denniston's Superb, Perdrigon Violet Hatif, Green Gage (*wall*), Transparent Gage, Jefferson, Coe's Golden Drop (*wall*), Reine Claude de Bavay, Coe's Late Red, Blue Impératrice (*wall*).

## PLUMS FOR CULINARY PURPOSES.

Early Prolific, Early Orleans, Mitchelson's, Denyer's Victoria, Diamond, Washington, Belle de Septembre.

## RASPBERRIES.

*Yellow*—Yellow Antwerp, Magnum Bonum, October Yellow. *Red*—Fastolf, Beehive, Carter's Prolific, Red Antwerp, Maclaren's Prolific.

## STRAWBERRIES, TWELVE BEST FOR SUCCESSION.

Amateur, Vicomtesse Hericart de Thury, Dr. Hogg, Crimson Queen, Kecu's Seedling, Marguerite, President, Royalty, Frogmore Late Pinc, Princess of Wales.



## HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY, GRAPE AND FUNGI SHOW, October 2.

—The number of novelties were, as is usual at this season of the year, very limited; but, as the competition for the prizes offered for Grapes, Fungi, and Potatoes, was very spirited, the meeting possessed a considerable amount of interest.

The first prize for Potatoes was awarded to Mr. Robert Fenn, The Rectory, Woodstock, for a collection consisting of splendid samples of Carter's Ashtop Fluke, Fenn's Rector of Woodstock, and Bountiful, a fine red kidney of the most perfect form; Cricket Ball, a fine red round; Early Market, a valuable round, early; and Woodstock Kidney. Mr. Fenn also exhibited a large collection of potatoes, consisting chiefly of new varieties raised at Woodstock, and which have now become fixed in character.

For a collection of Grapes, Messrs. H. Lane and Sons, Great Berkhamstead, Herts, were first with a splendid lot, in which were good samples of Mrs. Pince's Muscat, Black Hamburgh, Black Prince, Muscat of Alexandria, Lady Downes, Foster's Seedling, Duchess of Buccleuch, Buckland Sweetwater, and other well-known kinds. Messrs. Lane and Son, and Mr. W. Cole, gardener to J. S. Budgett, Esq., Ealing Park, were first and second respectively for a single bunch of white grapes, with magnificent examples of Muscat of Alexandria. From Mr. Wells, of Southend, came a fine basket of Black Hamburgh Grapes, large in bunch and berry, and exceedingly well coloured, grown in Wells's Ground Vinery; and from Chiswick examples of Madresfield Court and Black Hamburgh Grapes grown without fire-heat. Both contributions were so remarkably good, that cultural commendations were awarded.

The display of Fungi was rather large, and possessed a considerable amount of interest to fungiculturists. Mr. Dean contributed examples of the Mammoth Californian Radish, and of a good type of Cauliflower; Mr. W. Cole, a splendid dish of Hepper's Goliath Tomato, which he considers the best of all the large forms; and Mr. Jones, the Royal Gardens, Frogmore, four smooth Cayenne Pineapples, which were very large in size and most beautifully finished; and Messrs. J. Veitch and Sons exhibited a large collection of Endive, representative of the various types in cultivation—Fraser's Broad-leaved Batavian represents a fine type of Batavian; Digswell Prize, Gloria Mundi, and Ruffie Green Curled, good types of Green Curled; Grosse de Germont and Grosse de Louviers, good types of the Stagshorn, or Rouen Curled. The types of White Curled and Moss Curled were also exceedingly good.

**THE KEW HERBARIUM.**—From a recent computation of the number of species of flowering plants preserved in the Kew Herbarium, it appears that there are 450 cabinets, each with 16 divisions, and containing in all from 105,000 to 110,000 species. These figures may, therefore, be taken to represent approximately the number of species of flowering plants known to botanists. According to the ideas of some botanists as to what constitutes a species, this number would probably have to be doubled. It must be remembered that, for the most part, each species is represented by numerous specimens, one at least from every country or botanical region where the plant is found wild. The orders and genera are arranged according to the natural system, the species being grouped according to botanical districts, or in conformity with the most recent Floras or monographs. It is thus comparatively easy, if the native country of a plant and its genus be known, to find it in the herbarium.

**IMPORTANCE OF WALL COPINGS IN THE CULTIVATION OF PEACH-TREES.**—At a recent meeting of the members of the Maidstone Gardeners' Association, a discussion on the culture of the peach was introduced by Mr. Luckhurst, gardener to the Earl of Romney, who placed on the tables a splendid collection of that delicious fruit from the open wall. Mr. Luckhurst attributes his success to a system which he has adopted for many years, of protecting his trees by affixing to the top of the walls a coping-board from twelve to fifteen inches deep, which thus affords shelter to the fruit, without interfering with the circulation of the air amongst the trees, or obstructing the genial influence of the sun. A long experience has proved to him that this system will secure a good crop in the most unfavourable seasons,

when the ordinary method of protecting the trees by bushes and matting has entirely failed. In the course of the discussion which followed, a gentleman said, that this year, where he had used boards in the manner above described, he had a good crop, but the trees on the same wall not so protected had been a total failure.

**FLORA OF LIVERPOOL.**—A very good "Flora of Liverpool" has been published by the Liverpool Naturalists' Field Club. The area included is within fifteen miles of Liverpool and two of Southport, and embraces some very interesting districts. The work has been performed by a Committee of the Society appointed for the purpose, with the assistance of amateurs and previously-published records, which have all, when possible, been verified. It appears to have been carried out with great care, and some valuable notes are appended to the records of some of the species.

**BRANDY FROM MOSSES AND LICHENS.**—In Russia, alcohol and brandy are now said to be largely manufactured from mosses; the quality is said to be exceedingly good, and many distilleries are making profits of 100 per cent. by this novel industry.

**FLOWERING OF A RARE PLANT.**—Mr. Bull, of King's Road, Chelsea, has recently had in flower a splendid example of the rare *Amorphophallus campanulatus*. The spathe measured four feet six inches in circumference, and was strikingly handsome, but the odour was exceedingly offensive. It is one of the most extraordinary plants in existence.

**THE QUEEN'S GARDENER.**—Mr. Thomas Jones has been appointed to succeed the late Mr. Rose as gardener to her Majesty at Frogmore. Mr. Jones has been for the last fifteen years in the service of Lord Leconfield, at Petworth, and was previously at Mr. Kelk's, at Bentley Priory, Stanmore; Admiral Vernon Harcourt's, of Swinton Castle, Yorkshire; and in early days at Crewe Hall, Trentham, etc.

**TABLE DECORATIONS IN THE SEYCHELLES ISLANDS.**—The Mauritius journals give an account of the visit of the Governor of that colony (the Hon. Sir A. Gordon), in September, last year, to the Seychelles Islands, the home of the famous "Coco de Mer." From them we learn that floral decorations for the table have been employed even in that remote world-forgotten nook of her Majesty's dominions. A grand entertainment was given to the Governor and suite at Mahé, in a private house lent for the purpose. The unoccupied space on the table was covered, over the cloth, with a flat arrangement of *Lycopodium Mahé*, relieved by sprays of jasmine, orange-flowers, and China roses, producing, the colonial chronicler avers, "a most charming effect, and diffusing a soft, balmy fragrance truly delightful."

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## TO CORRESPONDENTS.

**FERNS FOR THE GREENHOUSE.**—*A Lady Amateur.*—The under-mentioned species and varieties will form a very nice and distinct collection. There are many others possessing a considerable amount of beauty and attractiveness, but you will do well to commence with those here mentioned. After possessing these you can add to the collection according to your taste and means:—*Adiantum cuneatum*, very elegant and compact, and useful for bouquets. *A. formosum*, a robust species, with large spreading fronds; very beautiful. *A. hispidulum*, rather dwarf, and compact in growth, very elegant and distinct. *Alsophila australis*, fronds large and spreading, and of a light green; a magnificent tree fern. *A. excelsa*, a very rapid growing and elegant tree fern, that should be in every collection. *A. Leicharditiana*, a noble species, producing large spreading heads. *Asplenium bulbiferum*, a free-growing species, with gracefully-arching fronds. *A. compressum*, a robust grower, with beautifully pinnate fronds. *A. lucidum*, a very strong growing species, with fronds ranging from two to four feet in length. *Blattaria culcita*, a noble species; fronds large and spreading, and of a bright green hue, very effective and beautiful. *Cibotium Barometz*, a grand species, with gigantic and beautiful spreading fronds; one of the very best for the conservatory. *Cynthea dealbata*, a noble species; fronds large and spreading, and silvery beneath, giving it a very effective appearance. *C. medullaris*, a beautiful species, of gigantic dimensions, and therefore of especial value for large houses. *C. princeps*, a magnificent species;

fronds tripinnate and gracefully arching. *Cyrtomium falcatum*, a distinct fern, with fronds of a leathery texture; medium size. *Davallia canariense*, a beautiful species, of medium growth and compact habit. *Dicksonia antarctica*, free in growth and noble in aspect; forms fine heads, and is one of the most valuable tree ferns in cultivation. *D. squarrosa*, a slender-stemmed species of great beauty; the fronds spreading out flat, and forming table-like heads. *D. Youngi*, a very elegant species, with slender stems; one of the most valuable. *Lastrea patens*, fronds pinnate, gracefully spreading, very fine and distinct. *L. Standishi*, a compact growing species, with dark green fronds; beautiful and distinct. *Lomaria capensis*, fronds lanceolate, rather bold and handsome. *L. Chiliense*, fronds pinnate, gracefully arching. *Nephrodium molle corymbiferum*, a compact growing variety, with beautifully crested fronds. *Nephrolepis tuberosa*, fronds long and narrow, gracefully arching; very distinct and useful. *Polystichum ordinatum*, fronds bipinnate and very bold and handsome; a splendid fern. *L. selosum*, fronds dark glossy green, gracefully arching; a most distinct and beautiful fern. *Pteris scaberula*, rather dwarf, forming dense masses; a very elegant and useful fern. *P. tremula*, fronds tripinnate, large, and spreading; very bold and handsome. *P. umbrosa*, fronds pinnate, and of a deep rich green; distinct and useful. *Woodwardia orientalis*, fronds bipinnatifid, attaining large dimensions, and gracefully recurving. *W. radicans*, fronds broad and gracefully spreading; should be grown on a pedestal or other elevated position, to allow of the natural development of the fronds.

ORNAMENTAL-LEAVED PLANTS FOR THE CONSERVATORY.—*A. B. Herts.*—The under-mentioned subjects are the best ornamental-leaved plants, exclusive of those with variegated foliage and the palms:—*Aralia crassifolia*, a distinct and handsome species. *A. leptophylla*, a charming species, with rather small and elegant foliage. *A. macrophylla*, very bold and handsome, the leaves large and of a bright green hue. *A. quinquefolia*, leaves large and fan-shaped; very distinct and ornamental. *A. Sieboldi*, a neat grower, with handsome bright shining green leaves. *A. papyrifera*, a vigorous growing species, with large spreading brownish green leaves; desirable. *Araucaria Bidwilli*, a very beautiful coniferous tree for the conservatory. *A. Cunninghami*, similar to the preceding, and very beautiful. *A. excelsa*, a very elegant and most desirable species. *Cordyline indivisa*, leaves broad, with orange midrib, very striking and handsome. *Beaucarnea recurvata*, a very elegant subject, with narrow gracefully drooping leaves. *B. stricta*, another beautiful species that can be highly recommended. *Cycas circinalis*, fronds pinnate, large, and gracefully spreading; very beautiful. *C. revoluta*, fronds of medium size, and of a deep green hue; very striking and handsome. *Dasyllirion acrotrichum*, leaves narrow, dark green; forms fine and compact specimens. *D. latifolium*, a fine species, similar to the preceding, but with broader leaves. *Dracena australis*, leaves deep green, rather broad; bold and handsome species. *D. cannaefolia*, deep green, broad leaves; free in growth, desirable. *D. indivisa*, leaves light green, gracefully spreading, grand for the decoration of the dinner-table. *D. indivisa atrosanguinea*, similar to the preceding in growth, leaves dark bronzy green. *D. indivisa Veitchi*, another fine variety, with richly coloured leafage. *D. rubra*, leaves dark bronzy red, a medium grower; attractive and useful. *Encephalartos horrida*, large rigid deep green leaves; forms a very bold and handsome specimen. *E. villosa*, a beautiful species, with gracefully spreading leaves. *Grevillea Hilli*, leaves elegantly cut, deep green, light and elegant in appearance. *G. longifolia*, similar to the preceding, but with longer foliage. *G. robusta*, a strong growing species, with light and graceful foliage; very desirable. *Lomatia Bidwilli*, leaves deep green, and elegantly divided; highly ornamental. *L. ferruginea*, similar in general appearance to the preceding, but with darker foliage. *L. heterophylla*, like the preceding, a very ornamental species. *Phormium tenax*, large sword-shaped leaves, very effective. *Rhopala corcovadense*, foliage very deep green, very bold and free in growth. *R. elegantissima*, smaller in growth than the preceding, and equally desirable.

SUCCULENTS FOR THE CONSERVATORY.—*R. W.*—The following are distinct in character and highly ornamental. *Agave Americana*, large growing species, of noble aspect. *A. Americana medio-picta*, a fine variegated variety of the preceding. *A. applanata*, a compact and pretty species. *A. Bessieriana candida*, a small grower, with silvery foliage. *A. celestiana*, a fine species, of medium growth, leaves ovate, very elegant. *A. coccinea*, a fine species, with reddish spines. *A.*



*ensiforme*, rigid dark green leaves, distinct. *A. filipera variegata*, a compact grower, leaves narrow, with white lines and white fibres. *A. geminiflora filipera*, compact and elegant; leaves edged with white threads. *A. Gheisbreghtii*, a neat grower; the leaves armed with white teeth. *A. grandidentata*, similar to the preceding, but smaller in growth. *A. horrida*, bold and distinct; the leaves armed with formidable spines. *A. macrodontha*, a neat small-growing species, with grand spines. *A. Noachi*, a distinct species, with drooping foliage. *A. Salmiana*, bold in growth, leaves dark green, terminating in long spikes. *A. Saundersi*, a distinct and beautiful species, with glaucous leaves. *A. Schidigera*, deep green leaves, clothed with white fibres. *A. Verschaffelti*, a beautiful dwarf and compact species, armed with formidable spines. *Aloe ferox*, bold and handsome, the leaves beset with prickles. *A. plicatites*, a very interesting and ornamental species. *A. canaliculata*, a noble species, with boldly channelled leaves. *Echeveria Agavæoides*, a compact growing species, with greyish leaves; very distinct. *E. atropurpurea*, a small grower, with dark red leaves. *E. glauca metallica*, a compact species, with silvery leaves. *E. metallica*, a strong growing species, with bronzy red leaves. *E. pulverulenta*, a compact growing species, with a silvery foliage; very beautiful. *E. retusa*, silvery leaves and red flowers, of especial value for winter blooming. *E. secunda glauca major*, dwarf variety, of great beauty. *Mesembryanthemum cordifolium variegatum*, a trailing variety, leaves variegated; a fine basket or vase plant. *Pachyphytum bracteosum*, massive in growth and distinct; foliage silvery, very beautiful. *Sedum azoideum*, an arborescent, compact growing species, producing a profusion of yellow flowers. *S. azoideum variegatum*, a finely variegated variety of the preceding. *S. Sieboldi variegatum*, a neat growing and very beautiful variety for baskets. *S. fabarium*, a strong growing species, flowering in autumn; most valuable. *S. fabarium variegatum*, a pretty marked variety of the preceding. *Sempervivum arborescens*, a beautiful species, forming nice stands and specimens. *S. arborescens atropurpureum*, a fine dark-leaved variety of the preceding. *S. arborescens variegatum*, a beautifully variegated variety of the typical form. *S. caricense*, a strong grower, with large spreading green leaves. *S. repens*, a strong grower, with deep green leaves. *S. talulæiforme*, very dwarf, with large spreading leaves; very distinct. *Yucca albo spica*, a fine and distinct species. *Y. aloifolia*, very bold, neat, and handsome. *Y. concava*, leaves rather broad and flat. *Y. De Smetiana*, a very beautiful and rare species. *Y. filamentosa*, leaves edged with white filaments. *Y. filipera*, a pretty species, with narrow leaves.

DESTROYING WOOD-LICE.—*H. H. W.*—These troublesome pests are partial to potatoes; therefore, we should advise you to take active measures to destroy them. If they are so abundant as you say, you might destroy thousands by smashing them with your feet. If you can pour boiling water into their haunts without touching the potatoes, do so. We have caught thousands in flower-pots filled with dry hay, and laid on their sides, and once a day lifting the hay out of the pots, and shooting the wood-lice into a pail of hot-water. Whether they would care for the pots in the face of the superior attraction of the heap of potatoes with the covering of hay, is a problem which you can very soon solve.

HISTORY OF THE CALCEOLARIA.—*An Inquiring Amateur*.—The Calceolaria is a native of high latitudes on the mountains of Peru and Chili. The first species seen in Europe was introduced in 1773; it was *C. pinnata*, a greenhouse annual. The next, *C. Fothergilli*, was introduced in 1777, from which date no other species made their appearance till 1822, when no less than four new species, two of them under-scrubs, enriched our collections. As soon as hybrids of these were obtained, they became special favourites, winning popularity as much by their curious form as by their elegant habits and lovely colours. There are many distinct species of Calceolaria known in collections, and the characteristics of some are very distinct. *C. alba* and *C. floribunda* were introduced from Chili by Mr. Lobb in 1842; *C. violacea*, of a pale purple, and *C. Sinclairi*, the New Zealand species, have been but lately introduced; *C. ericoides*, the heath-like Calceolaria, is a wiry, woody shrub, partly upright, partly procumbent, and studded with hirsute blossoms of a bright yellow; but those in most request by florists are the varieties of the shrubby *fruticosa*, and the many gay descendants of *corymbosa* and *arachnoides*, of which the typical form has long been lost in the many hybridizing the flowers have undergone.







YAM-ERAM (18) 1700

## WINTER-FLOWERING STOVE PLANTS.

(With Coloured Illustration of *Exanthemum palatiferrum*.)

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



) many of the best winter-flowering plants require more warmth than that afforded by the ordinary greenhouse that where flowers are in much request during the winter season, the assistance of a stove is necessary.

There are, it is true, a considerable number of greenhouse plants which bloom during the winter season, but none of them can equal in brilliancy and effectiveness the best of the stove plants that bloom naturally at the same period, and of which the showy *Poinsettia pulcherrima* and the elegant *Euphorbia jacquiniæ-flora* may be mentioned as examples. It is not, however, so much my intention to advocate the cultivation of stove plants, as it is to show that without a stove it is difficult to have a good display of winter flowers, and to point out a few of the most useful subjects, and to offer a few hints on their successful management.

In speaking of the cultivation of stove plants, it is necessary to caution the amateur against keeping too high a temperature, not only because there is a waste of fuel, when this is done, which is a very important matter at this moment, but it is injurious to the occupants of the house. Stove plants, although they require artificial heat during the winter, must have a season of rest, or they soon become unhealthy, and produce but a scanty supply of flowers. For an ordinary collection of stove plants, a temperature ranging from 60° to 70° according to the weather, will be quite sufficient for the winter season, which may be said to begin with October, and end with February. The minimum temperature should not be exceeded when the heat is maintained by artificial means exclusively, but there will be no harm if the thermometer exceeds 70°, during bright, sunny weather. In building stoves, the amateur should, unless it is intended to grow palm and large specimens, carefully avoid building the house too large, because of the extra amount of fire-heat necessary for keeping up the desired temperature, and the distance, which of necessity the plants must be, from the glass. The stove should be well-ventilated during the summer season, and during the winter air should be admitted occasionally as opportunities may offer. The plants must not be exposed to cold draughts, and very little ventilation will suffice to maintain the purity of the atmosphere, for a very considerable body of air will find its way between the laps of the glass. There is not, of course, time to raise a stock of the several subjects for the present season, but the directions which will be given, will, it is to be hoped, be of considerable service to those amateurs who contemplate raising a stock for the winter of 1873-4.

**AMARYLLIS.**—Of these there are now a large number of splendid varieties. The season of flowering of these beautiful plants is entirely under the control of the cultivator, and is regulated by the time of starting the plants into growth; but they will, generally speaking, be in bloom about six weeks after being placed in heat to insure a vigorous growth, and well-matured bulbs. Pot them in turfy loam, to which should be added about a fifth part of rotten hotbed manure and a little sand. Press the soil in firm, and with the aid of weak liquid manure, a shift every third year will be quite sufficient. Avoid the common practice of roasting the bulbs on flues and hot-water pipes when they are at rest, and instead, place the pots on a bed of coal-ashes in the greenhouse during that period. A strong bottom-heat is not required for starting amaryllis into growth, as they will start equally well placed on a stage with the other occupants of the house. The cheapest way to raise a stock is by means of seed, which can be sown as soon as ripe, and the seedlings may be potted on as fast as may become necessary. If proper judgment is displayed in selecting good varieties for seed-bearing, there will scarcely be one really bad flower amongst a hundred seedlings; though, of course, all will not equal the many fine varieties now in commerce.

**ANTHURIUM SCHERZERIANUM.**—This is remarkably attractive when in flower, and its bright vermilion spathes have the desirable quality of remaining fresh for a considerable length of time. Use a mixture of turfy peat, silver sand, and nodules of charcoal, and in potting the plants keep the base about two inches above the level of the rim of the pot. The pots should be filled to one-third of their depth with crocks to insure a perfect drainage. It is a capital plan to cover the surface of the soil with growing moss, for it has a most pleasing appearance, and the moisture arising from it is highly conducive to a more healthy growth.

**APHELANDRAS.**—The eminently showy *A. aurantiaca* Roetzli is very easy to manage, and extremely useful. Small plants are well adapted for table decoration, and the individual flowers may be turned to good account in bouquet-making, by taking them off carefully to prevent any injury being done to those remaining. To insure a stock of healthy plants by next autumn, strike the cuttings early in February and pot them off when well rooted. They will require a shift, when nicely established, into pots two sizes larger than those into which they were put from the cutting pot. Use an open compost consisting of equal parts turfy peat, loam, and leaf-mould, and a liberal proportion of silver sand. They require a light and moderately airy position, and plenty of moisture. Early in the spring prune them back, and when they begin to make new growth shake them out of the old soil and repot them in the same sized pots again, using of course a fresh compost prepared as advised above. They may then be shifted on according to the progress made. It will be well to bear in mind that it is not desirable to shift them into pots of a very large size.

**BEGONIAS.**—The winter-flowering kinds are very valuable, because of the ease with which good specimens can be produced,



and the fine display they make when in flower. To insure strong plants by autumn, put the cuttings in early in the spring, and grow on freely after they are struck. Avoid over-potting, a six-inch pot being quite large enough for the plants to flower in the first season, and an eight-inch size for the second. As they cease flowering, cut them down to within a few inches of the surface of the soil, and after the young shoots begin to push, take them out of the pots, reduce the ball of soil, and repot in the same size again. Use turfy loam and leaf-mould, or decayed manure, in the proportion of one part of either of the two latter to two parts of the former. Let the pots be efficiently drained, and keep the plants near the glass, and expose them freely to the light. The shoots must be supported with neat stakes to prevent their being snapped off. The best sorts for winter decoration are *Alba coccinea*, *Fuchsiodes*, *Insignis*, *Nitida*, *Saundersiana*, *Erecta multiflora*, and *Weltoniensis* (syn. *Clarkei*). The last-named is one of the very best for small collections, as it has a fine bushy habit, and flowers almost continuously throughout the year.

**ERANTHEMUM.**—The charming *E. pulchellum* is extremely valuable for the distinctness of its bright blue flowers, as nearly all the other winter flowers have more or less red in their composition. To raise a stock for flowering in winter, strike the cuttings in February, and shift on without allowing them to become pot-bound until they reach six-inch pots, in which size they should flower. The secret of obtaining plants that will flower profusely consists in growing them freely during the early part of the season, to give the wood sufficient time to become well matured. The old plants, after the necessary supply of cuttings have been taken from them, should be destroyed, as the young plants are so much better in every respect. *E. elegans* is also very attractive, for the flowers are produced very freely in neat spikes, and are very prettily spotted. Neither of these species are grown to the extent they should be.

**EXANTHEMUM.**—The two varieties of *E. palatiferum*, known respectively as *E. p. roseum* and *E. p. coccineum*, are, as portrayed in the coloured illustration, very beautiful and attractive. They are of free growth, and as they succeed so well when managed in the same way as the *Eranthemum*, it will suffice to direct attention to the directions which are given in speaking of those plants.

**EUPHORBIAS.**—The very elegant and highly attractive *E. jacquiniæ-flora*, can be highly recommended for the decoration of the stove or dinner-table, and also for furnishing a supply of cut flowers. For head-dresses, the flowers are especially valuable because of the length of time they remain fresh. It is in much request here for dressing up épergnes, for with half-a-dozen spikes, the same number of sprays of the lovely *Deutzia gracilis*, and a few fronds of *Adiantum cuneatum*, a beautiful arrangement may be effected. Considerable care must be exercised or the plants will become so drawn as to be rather unsightly. To keep the growth as dwarf as possible, allow the plants the advantage of a light position and place near the glass; and to prevent the foliage becoming infested with red-spider, syringe them

overhead once or twice a day throughout the growing season. The simplest plan of obtaining bushy little specimens is to put five cuttings in a three-inch pot, and when rooted transfer them intact to one two sizes larger. After the cuttings are taken off allow sufficient time for the wounds to heal over before inserting them in the soil; and, to insure their striking quickly, plunge the cutting pot in a brisk bottom-heat. I find a cucumber-bed a capital place in which to put them. Pot in equal parts turfy loam and peat, and add a little sand. The first or second week in March is the most suitable season of the year for propagating a fresh stock, but cuttings struck in April or May will flower very well in the following winter, although not so well as those struck in the first-named month, and because they have not so much time for the maturation of the wood.

**JUSTICIA SPECIOSA.**—This beautiful plant is first-rate in every respect when well grown, which it may be said is a rare occurrence, although the whole of the rules necessary to be observed in its management can be summed up in a few words. Strike the cuttings early in February, pot off when well rooted, shift into six-inch pots as soon as they are well established in the pots in which they were put when potted off, and then shift no more. After they become pot-bound, water alternately with liquid manure; grow in the full light to insure short-jointed and well-ripened wood. Old plants cut down after the beauty of their flowers is past will flower grandly the following season, if pruned and otherwise managed as advised for the begonias.

**PASSIFLORA PRINCEPS.**—This climber is very useful for supplying cut flowers for the dinner table throughout the winter. It can be grown in pots, but succeeds best planted out. To insure its flowering freely during the winter, cut back a proportion of the side shoots about the end of July, and then allow them to extend without stopping. A large plant in a stove, managed in this way, will be loaded with racemes of its beautiful crimson flowers for several months.

**PLUMBAGO ROSEA.**—This is a fine subject, and should find a place in every collection of stove plants. It is by no means difficult to have the plants fairly loaded with flowers, the spikes of which average from twelve to eighteen inches in length. No special management is necessary, and good plants may be obtained by managing them in the same way as advised for the *Justicias*.

**POINSETTIA PULCHERRIMA.**—Independent of the great value of the Poinsettia for the decoration of the stove, elegant little specimens in either five or six inch pots are invaluable for table decoration, as the brilliant scarlet-coloured bracts come out so well under the influence of artificial light. Where time or skill is wanting to produce dwarf specimens, strong leggy plants may be utilized by taking off the top with about twelve or fifteen inches of stem, according to the size of the bracts, and inserting them in a small pot filled with wet sand. The tops ought not to be taken off more than an hour before they are placed upon the table, because, if the leaves happen to droop before the guests rise, the deception will be discovered. Medium-sized bushy specimens may be produced either by putting

four or five cuttings in a small pot, and shifting on without separating them, or by cutting down a small plant in the spring, and training the shoots down during the following summer and autumn. To attain the best results, cut down a few small plants of the preceding year early in the spring, and after five or six shoots have pushed from each, shake out and repot in the same size again, and from thence shift into eight-inch pots, and then shift no more. Tie out the growth sufficiently to allow of the full development of the leaves, and, as soon as the shoots begin to harden, which will be early in August, bring the point of each shoot down to within nine or twelve inches of the rim of the pot, and secure it there. This operation requires considerable care, or many of the best shoots will be injured, if not broken off altogether. Give the plants the benefit of a generous temperature, and a liberal supply of water at the roots, accompanied with just sufficient air and shade to keep the wood short-jointed and the leaves from being scorched. Use a compost consisting of equal parts loam, peat, and leaf-mould, and press the soil rather firm. Poinsettias can be multiplied either by means of eyes obtained from well-ripened wood, or by cuttings of the young shoots produced after the plants have been pruned. Cuttings are the most desirable for amateurs, because of the greater certainty of their rooting freely.

**THUNBERGIA LAURIFOLIA.**—This can be grown as a pot specimen, or it may be planted out and trained over the roof. Grown either way, if assisted through the autumn with weak liquid manure, it will flower profusely throughout the winter.

**THYRSACANTHUS RUTILANS.**—When this plant has justice done to its merits, nothing can surpass it in beauty or elegance of contour. A well grown and flowered specimen is most elegant and attractive in appearance, and may be employed with great advantage in the decoration of the dinner-table. It will succeed under the same management as the *Justicia*; therefore, it is utterly unnecessary to repeat the details here.

**TORENIA ASIATICA.**—This has a charming appearance grown in baskets suspended from the roof of the stove. It flowers freely during the autumn and winter, and will succeed under the same management as other free-growing soft-wooded stove plants. The cuttings should be struck three or four in a pot, and when they are nicely established, and have been stopped once, to encourage the production of side-shoots, they should be transferred to the baskets.

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**OUR MOSS FLORA.**—The "Journal of Botany" for July contains an excellent article by Dr. Braithwaite, on "Recent Additions to our Moss Flora," illustrated by two lithographic plates of the new species.

**NEW BRITISH FLORA.**—Mr. A. Irvine, of 28, Upper Manor Street, Chelsea, is preparing a new work on the "British Plants," giving a condensed summary of the characters of the orders, genera, and species. As he is very desirous to obtain information about all recent additions to the species, and hitherto unpublished localities, he will be glad to receive any assistance on these heads.

December.

## STOCKS FOR ROSE-BUDDING NEXT SUMMER.



AMONGST the more important items in the autumnal and winter work in the rose garden, the planting of briars for forming standard roses, and of Manetti stocks for dwarf roses, claim and obtain particular attention. On the manner in which stocks are obtained and prepared in the first instance, will in a great measure depend the welfare of the roses which may be hereafter grafted or budded on them. As a strong house cannot be built upon a weak foundation, so a rose deriving nourishment from a weak stock cannot, under the most favourable circumstances of soil, climate, and management, acquire the degree of vigour requisite to a full and free display of its beauties. The rosarian has at this time of the year the future welfare of his pastime almost entirely in his hands, for it will be no hard task to obtain buds of first-class varieties when they are required; but if stocks are not looked after now, the best buds and the best work will in the ensuing summer be in great part wasted.

THE COMMON BRIER or Dog-rose, *Rosa canina*, is the stock most commonly employed for the formation of roses with a distinct single stem, such as are termed "standards," "half-standards," and "dwarf standards," and for this purpose it is best of all adapted. It is abundantly distributed in hedgerows, and on the borders of woods and coppices throughout all the milder parts of Great Britain, and will be found to attain to the most robust growth, and to flower and fruit most plentifully on deep, moist, strong soils, especially on loams that incline to clay. On such soils, as might be expected, it carries garden roses better than on such as incline to chalk or limestone, or on any starving sand or gravel. But on a deep, well-tilled day, the dog-rose thrives nearly as well as upon a fertile loam.

The ordinary manner of obtaining briars is so objectionable, that we are bound to enter our protest against it in the interest of every amateur. A labourer obtains permission to take briars from a hedgerow, and he is of course cautioned against committing any more damage than is absolutely necessary. He finds a stout brier or two, or a little forest of them, and proceeds by means of a mattock and spade to dig them out in a manner most easy to himself and the least injurious to the hedgerow. The result is that he obtains the stems with a few huge knobs of the root stock attached, as if the briars were dug for the manufacturer of walking-sticks, but of genuine roots he obtains none. However, that does not concern him much, and he is content at the end of his day's work to lay his gathering in a heap fully exposed to the weather, and at the end of the next day, to lay up another heap, and so on until he has secured all the briars the hedge will afford him, and his next business is to sell them if he can to a nurseryman or gardener. Now, amongst the many, some will be better than others, and probably the nurseryman who is prepared to buy some thousands, will have first pick,



and will make his purchase early, and will have the purchased briers planted quickly, and thus will make the best of materials that come to hand in the first instance very much damaged. When the season is far advanced, the briers that have been rejected by the experienced trader, and have been exposed to the deteriorating influence of the atmosphere, and are perhaps additionally injured by friction, so that stems and roots are much cut and bruised, are purchased by some hopeful beginner in rose culture, and are with great care planted according to the book. The nurseryman who bought early and knew well how to select, will in the end lose a certain proportion, for he cannot insure briers with roots any more than the later and less experienced purchaser. But this last loses a far larger proportion, for he begins with a more dilapidated stock, and some of those which appear to begin life well, become sickly in a year or so, owing to the spread of mildew over their roots, the consequence of their being severely hacked and bruised in removal from the hedge and conveyance to their ultimate destination. Many briers that are skilfully budded and make a good start, become wretched bogeys at last, owing to injuries incidental to their transference from the field to the garden, and hence it is of the utmost importance for all who employ the brier to begin well, securing, if possible, stocks actually furnished with roots, and to get these planted as early and as carefully as possible, that they may be thoroughly established by the time that they are to suffer another great check by having buds or grafts inserted in them. In cases where an amateur can obtain briers from his own fields, or from those of his neighbours, he may do much better than to trust implicitly to the rude labourer who looks upon a brier as in this respect resembling a willow wand, that if you "stick" it in the ground it is sure to grow, and therefore does not want any roots to begin with. Briers taken up with a little care, properly trimmed, and quickly planted in good ground, will make a fine growth in the ensuing spring, and be ready for budding by the time that buds may be cut for the purpose; therefore, those who are ambitious to produce fine, free-growing standards, are advised to look after the grubbing-up of briers with eyes and hands of their own.

It is not always possible to obtain good briers from the hedge or woodside, but it is always possible, and profitable too, to *produce* them at home; and those who practise the art aright, will find that one home-grown brier is worth, on an average, any three of the best bought briers that ever were seen. The simplest of all modes of producing briers is to allow the suckers to rise around a certain number of standards in the garden. It must not be supposed that by recommending this course we are unmindful of the neatness and finish requisite wherever a display is made of the queen of flowers. But let us go to the quarter where the budding is performed, and there we shall find a certain number of briers that have not made nice shoots, as well as of buds that have failed, or have been torn out by the wind. Now we may just as well allow the suckers to rise around the unfortunates, as cut them away; and when October returns, it will be an easy matter to lift them and cut the suckers

clean away, and plant them separately for such purposes as they may prove to be adapted for at a future time. This is the easiest way of obtaining briars by a system of propagation, but it is an untidy way, and cannot be carried out with any degree of vigour, except in a garden where a plot of ground can be set apart for nursery purposes.

It does not appear to have been known to any of our many writers on the cultivation of the rose, that the briar can be multiplied by cuttings and seeds with the same facility as any of our named garden roses. Yet both these methods were described in our rose papers in the FLORAL WORLD during 1859 and 1860, and in the "Amateur's Rose Book," which was first published in 1864. The months of October and November is the time to be busy with both operations. As for the cuttings, they are made and managed in precisely the same manner as cuttings of any other kinds of roses are in autumn, or to aid the reader with a reference, as described in the "Rose Book" at page 255. The cuttings should be made from ripe wood, and be disbudded from the base upward, to within three or four joints of the top, and then be planted thickly and firmly in an open spot to the south of a belt of trees, or some other shelter that will afford a little aid when the keen winds of March begin to pipe, and the scarcely rooted cuttings are beginning to grow.

To raise briars from seed is the most troublesome, but the most profitable of all methods, for seedling briars a year old are without doubt the best of all known stocks on which to bud roses, and more especially for the formation of vigorous bush or climbing roses, flowering to the ground. The hips should be gathered in October or early in November at the latest. If a large quantity are to be grown, the hips must be "stratified," or in other words be buried in sand—a layer of sand and a layer of hips in regular alternation—to promote the rotting away of the pulp. This of course must be done in an open situation, exposed to all weathers. In March the heap should be opened, and the seeds separated from the mass, by rubbing it through a sieve. They are then to be sown in an open quarter, and if kept carefully weeded will make nice briars the first year. If a few seedlings only are grown, there is no need for stratifying, the seeds may be very easily separated from the pulp, and may be sown in autumn. It is of the utmost importance to keep the seedlings carefully weeded in their earlier stages of growth, or they may be choked by ignominious dandelion, dock, and groundsel.

THE MANETTI BRIER, *Rosa Manetti*, is of free growth and very distinct in character. Its tendency is always to form a spreading bush, numerous shoots arising from the base of the stem, and suckers from the root, until a large and vigorous stool is formed. If allowed to grow naturally, the Manetti Briar flowers freely and beautifully, its roses being large and single, and of an exceedingly pleasing bright pink colour. Its great value to the rosarian arises out of its great wig of surface roots, for it seeks for nourishment in all directions, rarely pierces deeply, and appears to be always more at home on stony and shallow soils, which are unsuitable for the briar, than on the rich deep loam and clay which that rampant

grower loves to feast upon. Hence, for poor soils which might starve brier roses, Manetti roses are well adapted; but they may be also planted on rich soils, for if planted deep enough to cover the insertion or "work," the Manetti roots perish, and the "work," or in other words the inserted rose, makes roots of its own and justifies the use of the Manetti as a capital nurse and carrier. To multiply Manettis, layers and cuttings are the only methods available, and there is really nothing to be said as to the method of procedure. This, however, is the time to plant them out, and therefore it is the time for purchasing a stock where there is none on the ground already. It is important to bear in mind that the Manetti stock is operated upon at the collar, and indeed, as close over the roots as possible, and in planting, sufficient space must be allowed between the rows to enable the operator to stoop or kneel when budding. The trader-grower may crowd his Manetti stocks so that the budder will suffer a little over his work, but the amateur must put the rows at least three feet apart, and the stocks a foot apart in the row.

MAIDEN'S BLUSH, a well-known and decidedly inferior garden rose, makes a capital stock for roses if treated in the same manner as the Manetti. If a quantity of this stock is required, now is the time to make cuttings of the wood of the season. Proceed in precisely the same manner as in propagating currant and gooseberry trees, and in due time you will be rewarded for your trouble.

S. H.

## THE POTATO CROP, PAST AND FUTURE.



AMONGST the many disasters of the past season, the failure of the potato crop is perhaps the most generally felt, although perhaps, in relative national importance, it must rank second to the almost general failure of cereals, and especially of wheat. There has been enough said about potato disease in the newspapers during the past three months, and we shall perhaps contribute more to the entertainment and instruction of our readers, by avoiding the subject, than in giving expression to our opinions as to its origin and the possibility of a remedy. As regards the horticultural view of the case, however, our readers have not been neglected, for we have on many occasions submitted to their notice the results of observation and inquiry, and offered practical suggestions for averting, or at least mitigating, the influence of the murrain. Our object now is to occupy a small space with matters that may prove of great value in the future; for although the next season may be one of the finest ever known, it may, on the other hand, prove to be worse than the one now drawing to a close.

In some of the more favoured districts in the southern counties, and in Sussex particularly, this year's potato crop is heavy, good in quality, and scarcely touched by disease. Given a dry soil, a small rainfall, and a flood of sunshine during June, July, and August, and

a good potato crop may be expected. Now just such a happy combination of circumstances favoured the plant in a few districts in the south, while elsewhere torrents of rain were falling daily, and the potatoes were visibly perishing out of the land. The dweller on the chalk may plant the potatoes with comparative impunity; the dweller on clay must be cautious. Where a good climate and a dry soil favour potato culture, the cultivators would do well to select sorts noted for *quality*, but in the other case the matter of principal importance is to obtain, if possible, sorts that are *disease-proof*. Now, as matter of fact, no potato is disease-proof, but the sorts differ greatly in their susceptibility to attack, and those that usually suffer least, are the best entitled to the attention of those who have to contend with difficulties of soil and climate.

It is of the utmost importance to those who have to play the cautious part, to bear in mind, that our finest types of potatoes, the Lapstones, the Flukes, and the Regents, are more liable than any others to be attacked by murrain in an unfavourable season. Several varieties of second-rate or even third-rate quality come through the trial well, but it must not be supposed that the worst kinds of potatoes are, as a rule, the least affected by disease. In our trial grounds, some three hundred sorts have been grown and compared during the past twenty years, and although whenever during that period the disease has prevailed, several of the finest sorts have been decimated, yet a few that are really good are comparatively disease-proof, while a considerable number that in our opinion are but second-rate in quality suffer comparatively little, and are therefore to be valued for tiding us over a difficulty. Anything in the nature of a rule, is of the utmost value in such a case as this, and we repeat that Regents, Lapstones, and Flukes are particularly liable to injury in a wet season. So also are all varieties of whatever class or breed that produce few or no apples. Sorts that produce flowers and apples in plenty may be expected to be comparatively disease-proof, the result, no doubt, of a vigorous constitution.

Another matter of importance in making a selection, is to secure the latest seedling sorts, so far as they may be purchased at a reasonable price, and are known to possess desirable qualities. On this point we have frequently insisted; for it appears that the initial vigour derived from seed, or as we may say, the natural accompaniment of the natural method of production, declines as time advances, and hence the oldest varieties are the weakest, and therefore the most liable to be attacked by the disease. This conclusion obtains general acceptance amongst observant cultivators, and in our own case has been most agreeably confirmed by the experiences of the past season. One set of seedling varieties in particular, for which we were indebted to Messrs. Bell and Thorpe of Stratford-on-Avon, have escaped in a manner which would create astonishment, had we not learned to expect from properly proved seedlings, good crops in bad seasons.

It may prove of some service to our readers to present a list of varieties that have usually suffered most severely, but we cannot



now make room for it, having prepared a list of those that have suffered least, from which our readers may make selections with some degree of safety. This list is not the result of our own observation solely, but the joint work of several cultivators living far apart, and having to contend with a variety of adverse influences.

## LIST OF DISEASE-PROOF POTATOES.

**BERWICK BEAUTY.**—A red round of good quality, flesh white and mealy. A heavy cropper, very slightly affected by disease. Ripens late. Keeps well.

**BETA** (*Bell and Thorpe*).—A fine white kidney; a heavy cropper, very slightly touched.

**BREESE'S PROLIFIC** (*Sutton and Sons*).—A very heavy cropper, and handsome. It was hard hit, but the crop was so large that we stored a fine stock of it.

**BURFITT'S SEEDLING** (*C. Turner*).—A fine white kidney; not a heavy cropper, but a stranger to disease, and greatly to be valued.

**CHAMPION** (*Bell and Thorpe*).—A first-rate early kidney, of the finest quality. For a first crop, whether forced or in the open ground, this is the best potato in the market.

**CLIMAX.**—A good white round; crops well, and knows but little of disease.

**CLIPPER** (*Bell and Thorpe*).—A grand potato; handsome, heavy, not a great cropper, but uniform in size, and disease almost nothing.

**EARLY COLDSTREAM.**—This famous early round comes through the trial well. The seed supplied by Messrs. Sutton and Sons, of Reading, produced a better crop than our own seed, owing probably to a change of soil, as we have had it in our collection some ten years or so.

**EARLY ROSE.**—This famous American potato makes amends for its poor quality—for it is second-rate at the best, and third-rate in cold soils—by its disease-resisting power. Its pure white flesh is something in its favour, too, and it is always a tremendous cropper.

**GOSFORTH SEEDLING.**—A red round, rather coarse, flesh yellow, very late. Not good enough for a well-kept table, but a capital potato to grow for market, as it looks well, crops heavily, and knows almost nothing of disease.

**HARBINGER** (*Bell and Thorpe*).—A fine white round, and one of the very finest for a main crop.

**KING OF EARLIES** (*Sutton and Sons*).—A heavy cropper, scarcely touched by disease.

**MANNING'S KIDNEY** (*Sutton and Sons*).—A fair second-rate sort, scarcely touched by disease.

**MAY QUEEN.**—A good early white kidney, handsome, productive, remarkably clean. One of the best to follow *Bell and Thorpe's Champion*.

**MODEL** (*Bell and Thorpe*).—A grand potato, which everybody should secure for next season. It has a silvery white skin, pure white flesh, is a good cropper, and suffers but little from disease.

**NEW HUNDREDFOLD FLUKE** (*Sutton and Sons*).—A fine white kidney, a heavy cropper, very clean; one of the best.

**NEW LATE ROSE** (*Sutton and Sons*).—A good second-class potato, as worthy as any to be described as disease-proof.

**OXFORDSHIRE KIDNEY** (*Sutton and Sons*).—A curious variety: the form a neat celt shaped kidney, the skin very rough and of a tawny buff, the flesh a deep gold yellow. It is, however, a high-class potato. The texture fine, and the flavour unique and nutty. The disease does not seriously affect it, and, as it is a good cropper, it must be recommended as one of the best.

**PIONEER** (*Bell and Thorpe*).—A large handsome white kidney, of fine quality. We have lifted a heavy crop, and consider it a great acquisition.

**RED SKIN FLOUR-BALL** (*Sutton and Sons*).—This has already become famous, and no wonder, for it is one of the most productive varieties known, and as nearly disease-proof as any. In quality it is second-rate, and it has no beauty; but tastes differ, and it is generally regarded as the best potato for the cottage garden.

**RIXTON PIPPIN** (*Pierpoint*).—A large handsome potato, which may be classed with both kidneys and rounds. In quality excellent, and a tremendous cropper. The disease makes a decided mark on it, but, nevertheless, so productive and good is it, that it has a fair claim to a place in this list.

S. H.

## CULTURE OF AMARYLLIS.

BY M. LOUIS VAN HOUTTE, OF GHENT.



**IN POTS.**—When in pots, Amaryllis should winter on a shelf in the temperate house. We fill the pots with earth from the beds, without watering, and about the middle of December we shift the plants into fresh pots filled with well-rotted leaf-mould, and just a little sand.

We shake off the old soil from the roots, taking care not to injure them in the operation, and using the end of a stick to loosen the adherent particles. We carefully remove all bruised and decayed fibres, and passing the finger up to the flat base of the bulb, round which the roots grow, we detach any decayed pellicles. We must be careful not to deprive the bulb of any of the tunics or lateral pellicles which cover it, as, however lightly they may be attached, it will be found later, when the plant is in full growth, that the bulb in swelling has regained its former consistency, and that these tunics now form a part of the substance of the bulb itself.

As regards the operation of repotting, we put a few broken crocks into the bottom of the pot, then, holding the plant by the stem with the roots hanging down within the pot, we sprinkle the earth into it lightly, until the roots and bulbs are covered up to the collar of the plant. The earth should be only lightly pressed down. This done, we place the plants close to the light in a temperate or hot-house, and keep them without water until they show signs of making a

start, and even then they must not have too much moisture. The plants should go into either the temperate house or the hot-house, according to the degree of forwardness we desire in their blooming.

Whilst the plants are in bloom the flowers may be fecundated if desired; but it must be observed that when once this has been done the flowers are spoiled, and after seeding the bulb rarely blooms during the succeeding year; the plants appear to exhaust all their energies in the production of the seed, and after the ripening of the latter the bulb shrinks, its tunics appear too large for it—in a word, it puts on the appearance of a sick man, who, as the saying is, “has fallen away from his clothes.”

After they have done blooming we plunge the plants, pots and all, into an open bed of garden soil or old tan, giving them water so long as they continue growing, and then discontinuing it, and leaving them dependent exclusively on the moisture they receive from above.

We may observe that in sinking the pots in the ground it is a good plan to withdraw each for an instant, and with a pointed stick to make a second hole in the bottom of the first corresponding with the hole in the bottom of the pot, which will prevent the earth-worms getting into the pot and disturbing the soil about the root. They do this by their ceaseless peregrinations, but they cause no other harm.

The pots should be taken up when the air gets chilly and the rains are no longer warm and genial. They should be placed, without a drop of water, on a raised shelf in the greenhouse, where the leaves will fade, and the plants will prepare for the repose which is indispensable to the production of luxuriant bloom during the succeeding season.

The plants may be shifted to fresh pots immediately after they have done blooming. In this case, a practised hand is necessary to shake off the earth from the new roots without injury, as they are very brittle when young. A finer show of bloom is sometimes produced in this way than in that just described.

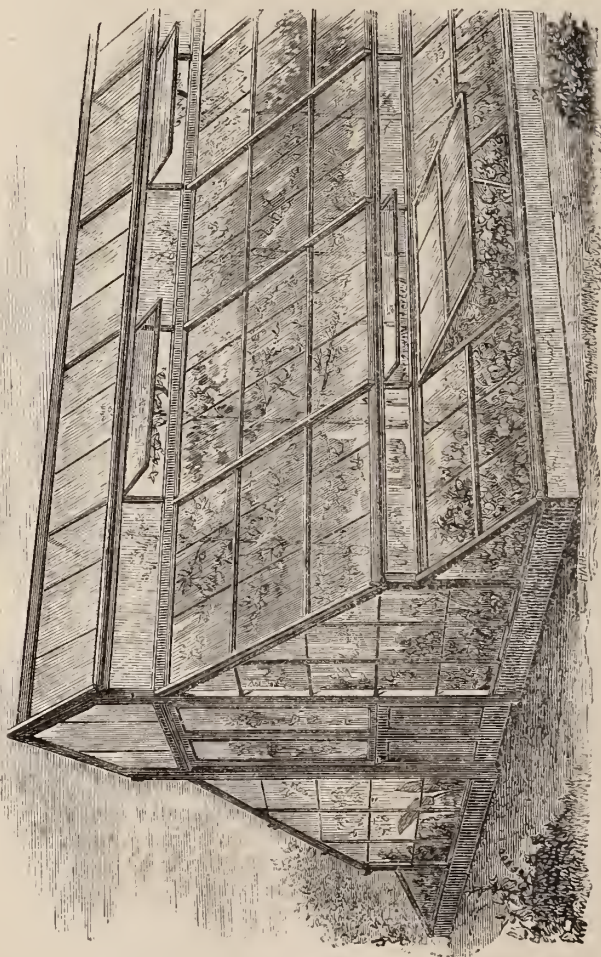
After shifting, the pots are placed in the shade, under trees or elsewhere, until the weather becomes overcast and the advent of rain is pretty well assured. The pots are then plunged in open beds, and treated as described above.

We have remarked that shifting the plants immediately after blooming will sometimes cause them to bloom more vigorously the following year, although the operation may be attended with greater risk than if performed in winter. The explanation of this appears to be that in the former case the roots have time to spread before the winter, and if they remain undisturbed through the latter season the plant will be well established in the pot by the time it puts forth its bloom. In winter-shifting, on the contrary, in spite of all our care, the buds may become developed before the roots have taken firm hold of the soil, and the blooms in consequence will lack vigour, as, unless a plant has a good hold upon the soil, it has no propellant force.

## MR. RENDLE'S INVENTIONS.



THIS month we avail ourselves of the opportunity of presenting illustrations of two glass structures designed by Mr. W. E. Rendle, 3, Westminster Chambers, Victoria Street, S.W. These are built on the same principle as the orchard-house alluded to in our last notice by Mr. Trussler, and of which a figure was given. The "Alexandra Plant-

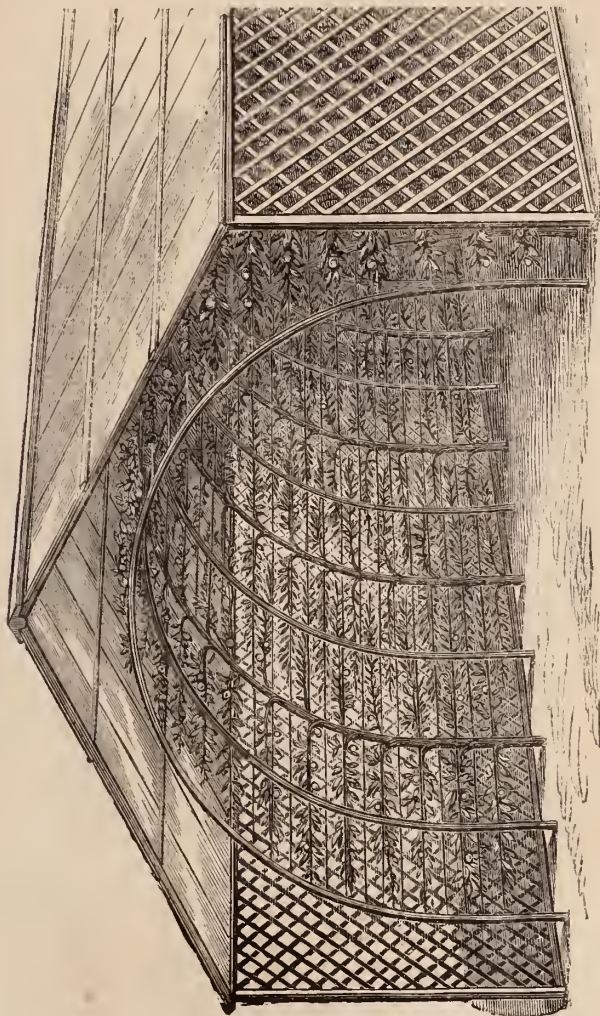


RENDLE'S "ALEXANDRA PLANT-HOUSE."

house" is a commodious structure, and may be devoted to fruit if desired. The house has the advantage of affording accommodation



near the glass for all the occupants, so that all the plants enjoy a fair share of light and air. The frames at the sides afford ample accommodation for vast numbers of bedding plants during the spring months, and throughout the summer they may be filled with such things as primulas, cinerarias, and calceolarias.



RENDEL'S "RUSTIC ORCHARD-HOUSE."

The "Rustic Orchard-house," is a span-roof form of the structure, illustrated in the *FLORAL WORLD* last month, and both excited a considerable amount of attention when exhibited at the Birmingham Exhibition of the Royal Horticultural Society in June last, as much

December.

for their cheapness as for the adaptability for the purpose for which they were designed.

The illustration shows the house filled with trained trees, but it may be planted with bush and pyramid trees if desired, but the former are in every way preferable.

For prices, and other particulars, we must refer our readers to Mr. Rendle, whose correct address is given above.

## CONSTRUCTING AND PLANTING VINERIES.

### IN TWO PARTS.—PART II.

BY A KENTISH GARDENER.



**L**AST month the principal points in connection with the construction of the houses were considered, and we will now turn our attention to the formation and planting of the borders. There should be a concreted bottom for all vine borders, and in the first place it must be understood that fresh lime and some other hard substance, such as coarse gravel, sea-beach, or small broken stones, are the only substances required. Gravel or sea-beach is preferable to stones, and when either of these is used, two barrow-loads of lime to three of the other will suffice, and make an excellent hard bottom; but when stones are used, owing to their coarseness, they require an equal quantity of lime to obtain a close and solid bottom as of stone. The lime should be had in quite fresh, and laid in a heap to slake about four hours before it is used. The lime, and whatever kind of stone is used, must be well mixed, and water applied freely as the work of mixing goes on, until the whole acquires the consistency of mortar. It is then in a fit state to be laid down, which must be done immediately. Where a fine material is used with the lime, a thickness of three inches will be sufficient, but with a coarser stone five inches is not too much. From ten to twelve barrowfuls is enough to mix up at one time, and as soon as this is laid down, give the surface a gentle sprinkle of water, and then beat firm with the back of a spade, and avoid all treading upon it until it is well set, and when no impression of foot-marks is left behind. If the weather is fine with a drying wind, it will become firm in about four clear days; but with dull damp weather it will sometimes take a week, or more. Eight inches of rough stones or brick-heads, with just a sprinkle of finer material on the top of them, will form an excellent drainage for the roots, when placed on the concrete.

An open porous soil, in which the roots can work freely, and air and water find no impediment to their beneficial action, is undoubtedly the best for the vine. A free unctuous loam, containing a good quantity of fibrous matter that has been previously laid by in a heap for at least three or four months, should form the principal staple of the border; to this ought to be added old mortar and broken bricks in the pro-

portion of one cart-load to two of loam, then should follow a liberal quantity of broken bones, the whole being well incorporated before being taken to the border. No animal manure should be employed, for it promotes a too vigorous growth, and it is always preferable to have a short-jointed, well-matured cane rather than a sappy succulent one, as the former will prove far more productive and satisfactory in the end. A border made of the soils here recommended will remain for years in a free open state, and will retain for a long period abundance of nourishment for the vines. There will be no early excitement and no sudden falling-off of food for the roots.

To tell an amateur to use loam for his vine border, and then to leave him to make his own choice, without some specific rules to guide him, is worse than having said nothing at all. The characters of many loamy soils differ so much in their adaptability for the purpose, more especially when not used in conjunction with some opening substance, that they are positively injurious to the roots of the vines. Some loams of a tenacious character will become so close and firm, that the roots of vines cannot possibly thrive; and these kinds of loam, when they have lain in one position for years, will, sooner or later, become water-logged, and impervious to the action of both sun and air. The natural consequences attending this state of things is a weak growth and the shanking of the fruit; but when no better soil is to be had, the cultivator should add an equal quantity of brick rubble and old mortar, and then the above misfortunes will in great part be avoided. In many parts of the country there is a kind of sandy loam that is more open, and consequently less binding in its character, and eminently suitable for vine borders. The worst of all loams, or rather what inexperienced people would accept for loam in dry weather in summer, is a kind of clay. Such a loam is by exposure to the atmosphere rendered friable and kind to handle all the time it is in a dry state, but immediately it comes in contact with water all the small particles quickly become united into a sort of paste. If a soil of this sort is covered so that the air cannot reach it in a direct manner, it will remain in that pasty condition, and become a serious enemy to the progress of root action.

It must be added that a depth of two feet of soil must be given in every case. With a greater width than ten feet, two feet six inches will not be too much next the house. In every case an allowance of at least four inches should be given when the border is made for it to settle down, as recently moved soil of the depth stated will be sure to sink that much. If possible, let the border be made during dry open weather.

Vines may be planted with safety early in the autumn or the spring, or indeed throughout the summer, but winter planting in outside borders should be avoided, unless the roots are protected from wet and cold. Those who contemplate the planting of vinceries next spring should secure the plants at once, cut them down to within seven or eight buds of the crown, cutting out all the eyes except the two top ones, and then stand them by in some cool house until the end of next March, if for outside borders; but if for inside, let the planting take place a month earlier. At the time of planting



shake off all the soil from the roots, and spread them out evenly over the soil not more than six inches under the surface.

Next to autumn planting is early summer planting; this is not yet practised by many, owing to its not being rightly understood. In many instances it is a very valuable practice, for when the young canes are planted with care in a well-prepared border, they seldom make a regular stand after planting; their roots are young and active, and by previously warming some nice fine soil to place round them, they at once take hold of it, so that there is scarcely ever any perceptible check upon their growth.

Here is given a short list of varieties of grapes, from which any of my readers may select with perfect safety:—

FOR AN EARLY HOUSE.—The *Frankenthal* *Hamburgh*, *Black Prince*, *Black Hamburgh*, and *Buckland Sweetwater*.

FOR AN INTERMEDIATE HOUSE.—*Pope's Hamburgh*, the *Champion Hamburgh*, the *White Frontignan*, *Trentham Black*, *Foster's Seedling*.

FOR A LATE HOUSE.—*Muscat of Alexandria*, *Lady Downe's Seedling*, *West's St. Peter's*, *Mrs. Pince's Black Muscat*.

## SEASONABLE NOTES ON CAMELLIAS.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



CAMELLIAS are held in such high estimation by all classes of society, and their flowers are so valuable for bouquets and other purposes for which cut flowers are employed, that no apology is necessary for my offering a few hints and suggestions that appear likely to be of service to the inexperienced cultivator at this season of the year. No attempt will be made to deal with camellia culture generally, but instead, the attention of cultivators will be directed to a few of the more salient points in their winter management, and some of the principal causes of failure explained.

We frequently hear of the buds falling off prematurely, and of the flowers falling before they are fully expanded, the chief causes of these mishaps are an improper use of the watering-pot, exposing the plants to sudden changes of temperature, and potting them in unsuitable soil. The first cause is, however, the most frequent, for many cultivators imagine that because the leaves are thick and leathery in texture, and do not flag so soon as those of many other plants, it is of little consequence whether the soil is allowed to become dry occasionally or not; and when the buds drop off some time afterwards, in consequence of the neglect, it is supposed that plants are not having the right management at the time. Now for the guidance of those who are impressed with the idea that camellias may be allowed to suffer from drought without experiencing any material injury, I will at once state that so sure



as the soil in which they are growing is allowed to become, and remain for a considerable period, dust dry, so sure will the buds drop off sooner or later. They usually suffer most when placed out of doors, during the summer season, although the effects may not be shown until some time in the winter, when the buds begin to drop off in a wholesale manner. It will perhaps be the means of preventing much unnecessary worry and trouble in attempting where to discover a remedy for the dropping of the buds, if I say that there is no means of preventing the buds dropping after they have commenced to fall off from the cause alluded to. All the cultivator can do, is to take as much care of the plants as possible, to keep them in good health, and then place them under the most satisfactory conditions for making a vigorous growth the following season.

Camellias require moderately liberal supplies of water, even during the winter season, but the soil must not be kept too wet. When the soil is in a constantly saturated condition, either from a too liberal application of water, or from imperfect drainage, the result is the same, the roots perish, and the flower-buds fall off prematurely. The individual specimens differ so considerably in their requirements, that it is impossible to lay down any precise rules as to watering them, but as a rule, the plants should be watered when the soil becomes rather dry, and sufficient applied to thoroughly soak every particle of soil. Then no more should be applied until the soil has become rather dry again. If strict attention is paid to this suggestion, there will be no danger of the buds falling through the plants having too much water.

Sudden changes will also frequently cause the buds to drop, therefore they must as far as practicable be guarded against. For example, specimens when removed from their summer quarters, especially when the pots have been standing upon a cool, moist bottom, to the greenhouse stage, not unfrequently lose a portion of their buds, if the house is kept too close, and the atmosphere made excessively dry through the too liberal use of fire-heat, for the purpose of keeping out the early frosts. To make the change as little felt as possible, the camellias should at first be placed at the coolest end of the house, and where they will have the advantage of a free circulation of air about them. The watering should also be carefully attended to, for any neglect will be most disastrous. It should be steadily kept in view that the camellia is a hardy shrub, and not a tender exotic as many people suppose it to be. Camellias do not force well, and if they are removed direct from the greenhouse to the forcing-pit or stove, a very large proportion of the buds will fall off, or the flowers will refuse to expand in a satisfactory manner. The proper way to secure an early supply of flowers is to select the plants some time during the winter, from which it is intended to have the earliest supply of flowers the following season, and when the principal portion of the flowers have faded, remove the remaining buds, place them in a cool stove, or other house, the temperature of which is intermediate between that of a stove and a greenhouse. Here they should be placed near the glass, sprinkled

overhead with soft tepid water once a-day, and otherwise encouraged to make an early growth. The house must be ventilated when the weather is mild, to secure a firm, short-jointed growth. When the buds are set, they can be gradually hardened off to bear the greenhouse temperature, and they can then be removed to the open air at the usual period. Specimens so managed will naturally flower much earlier than those which have had no special encouragement, and they will be in much better condition for forcing if required.

If at any season of the year the drainage gets out of order, from any cause whatever, turn the plants out of the pots, and put them in clean pots of the same size, or return them to the same pots again after the latter have been thoroughly cleansed. In either case, sufficient crocks should be placed in the pots, before the plants are put in them, and in such a manner that the ball of soil will fit nicely in them without any difficulty. When the roots have got into a bad state, through bad drainage, the ball of soil should be reduced, the dead roots removed, and the plant put into a smaller sized pot. This, however, should not be done in the middle of the winter, as it is better deferred until the early part of the spring, and, in the meantime, no more water must be used than is imperatively necessary.

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### GARDEN GUIDE FOR DECEMBER.

**KITCHEN GARDEN.**—Make plantations of rhubarb, seakale, asparagus, and horseradish. Roots of dandelion, packed together in leaf mould and put into gentle heat, will furnish a delicate salad in five or six weeks. Paskall's seakale pots are best for the purpose. Keep dung and all soluble matters under cover. Turn over manures, and put aside, in heaps to be frozen, rotted leaves, and other materials suitable for potting, and when well sweetened and pulverized, remove to bins in the potting-shed to keep dry for use. Get sticks and stakes tied up in bundles ready for use; wheel turf and weeds to the muck-pit; get pots washed and sorted over, and crocks sifted into sizes for the potting-bench. This is a good time to make new drains, improve watercourses, and plant hedges. Sow early peas and beans on warm dry slopes; broccoli to be heeled over with their heads to the north. Take advantage of open weather to push on planting and ridge up vacant ground to the frost. During frost is a good time to empty muck-pits and wheel out manures; and if the ground is not too hard frozen, turn over the plots that are already ridged to expose a new surface to the frost. When earth-work of all kinds is at a standstill through severe weather, some good jobs may be found in repairing fences, clearing up litter in the rubbish yard, collecting rough material for paths and drains, and burning weeds and refuse.

**FRUIT GARDEN.**—Fruit trees to be planted with all speed; it delayed much longer, the next year's crop may be lost. Always trim away by a clean cut, all bruised and jagged portions of the roots; place the original collar at the level of the soil, so that the

tree is no deeper than it was before, and fill in with soil in a friable condition. No tree will prosper if the roots are puddled in with wet pasty earth. Bush fruits to be propagated by cuttings of ripe stout shoots of last year, and the buds to be removed from the bottom of the cutting to within four inches of the top, so as to form a clear stem and prevent suckers. Lay on a thick coating of half rotten dung between gooseberry and currant bushes, and in dry weather prick it in with a fork, so as to avoid injury to the roots. Raspberries to have a heavy mulch, which is not to be pricked in; any disturbance of their roots is a great injury. In small gardens, the best crop of currants will be obtained from standards, which are easily grown, and have a very handsome appearance when loaded with fruit. Dig round old fruit trees, and lay down a layer of old dung, six inches thick, in a ring, three feet round the stem of each, and the size of the fruit will be improved next season. Trees that are sufficiently luxurious should not have manure. Root-prune any trees that grow too luxuriantly to bear well. Give protection to any tender fruit trees, and lay boards in a slope over vine borders to shelter them from excessive cold rains. Unnail from the walls the younger shoots of tender wall-trees to prevent premature flowers in the spring. Let nothing lie in by the heels an hour longer than can be helped.

**FLOWER GARDEN.**—We cannot advise the planting of evergreen shrubs at this season. It would be much better for the trees to be content now with marking the places where they are to go by stakes, and leaving them untouched till April, when the shift will distress them less, and they will commence to make new roots immediately. This plan allows of the planting of deciduous trees and the finishing of all the rough work in laying out a shubbery; and it may even be carried so far as to the making of holes for the evergreens, laying the stuff taken out in heaps beside them to get completely pulverized for filling in. Every cultivator of flowers should secure now a good supply of turf from a loamy pasture, and of bog, peat, or silky yellow loam in which the common brake grows plentifully. These should be stacked up in high ridges like walls, so that the frost will penetrate the whole mass, and the grass will rot quickly. Manure, roughly spread among choice shrubs, will assist in protecting their roots from frost. In spring the manure can be levelled, and all rough stuff raked off. This is a good time to make banks and rockeries, as during frost the wheeling can be done without harm to the walks. Roses should be heavily mulched with half-rotted dung. They may be planted now during dry weather; the ground to be in good heart, deeply trenched, and well manured. On loamy land broken up from grass, roses do better than in ordinary garden soil, and those who grow for show should turf liberally.

**GREENHOUSE AND STOVE.**—The greenhouse to have as little fire-heat as will be safe, and to be kept as dry as possible. On the occasion of a sudden frost, there is a tendency to get up a brisk heat at night, and much harm is inflicted on plants by running the temperature up to 60° or more, and then leaving the fire to go out,

so that by the morning they are exposed to a temperature of 35° or less. The amateur must endeavour to avoid such extremes. By a little watchfulness it may generally be known when frost is to be expected; the fire should then be lighted early in the day, and allowed to go very low at night, and be banked up the last thing, so as to burn slowly till morning. Be very cautious in giving water; give enough, and not a drop to spare. A good time for a general watering is on those bright mornings when a west wind blows, and it seems as if spring had suddenly set in. Another time when watering must be generally attended to is when fires are going to keep out frost, for then it is that plants are likely to be dried up and irreparably injured. Chrysanthemums will keep the houses gay till after Christmas, when the first lot of forced shrubs, especially azaleas, will come in to take their place. In the conservatory, whatever flowers are at command may be made the most of it by judiciously intermixing with them good plants of Yucca, Acacia lophantha, Camellia, and others possessing characteristic foliage. Hard-wooded plants in the greenhouse must have as much air as the weather will allow, and as little water as possible, as we may expect severe frosts. The thermometer should not descend below 38°. Soft-wooded plants will be subject to mildew if the house is at all damp, and must have fire-heat during foggy as well as during frosty weather. Mixed stove selections must now be kept rather cool, as growth is not desirable. Keep the atmosphere of the house sweet by giving air on fine days. All stove plants approaching a state of repose to have little or no water.

## HORTICULTURAL AFFAIRS.



**EXHIBITIONS OF CHRYSANTHEMUMS.**—These have been exceptionally good this season, and have afforded unmistakable evidence of the fact that the cultivation of the chrysanthemum is extending amongst the middle classes. MR. FORSYTH, Brunswick Nursery, Stoke Newington, had, as usual, a grand display of the principal varieties, and MESSRS. DIXON AND CO., Amburst Nursery, Hackney, also had a very capital exhibition, comprising all the most useful varieties in cultivation. The STOKES NEWINGTON SOCIETY had, as is its wont, a splendid display of cut blooms at its annual exhibition, and the exhibition of the SOUTH ESSEX CHRYSANTHEMUM SOCIETY, held at Stratford, Essex, was as remarkable for the fine groups of specimen pompons and large-flowered specimens. The WOOLWICH AND PLUMSTEAD CHRYSANTHEMUM ASSOCIATION held an exhibition in the Town Hall of the first-mentioned town, which may be fairly considered one of the best held during the present season, although the association has been formed a few years only, and is confined almost exclusively to amateur cultivators. A few classes are provided for professionals, but the productions staged were, with but few exceptions, those of amateur cultivators. Some of the large-flowered dwarf and standard specimens were the finest ever seen, and wonderful examples of cultural skill. The display of fruit and miscellaneous plants at the exhibition of the BRUXTON HILL HORTICULTURAL SOCIETY was exceedingly good. The SOUTH LONDON and the NORTH-WESTERN AMATEUR CHRYSANTHEMUM SOCIETIES have also held very successful exhibitions. We shall attempt an analysis of the exhibitions next month.

**DISEASE IN PEACH TREES.**—M. Prillieux has recently presented to the French Academy of Sciences some observations on that very common malady of the Peach Tree, known as Blister, and which has been attributed at various times to the



attacks of aphids, or to sudden alterations of temperature. Tulasne, however, discovered, some years since, the presence of a minute Fungus on the blistered leaves, which he called *Taphirina deformans*, which is synonymous with the *Ascomyces deformans* of Berkeley. The thecæ containing the spores present themselves almost exclusively on the upper surface of the leaf, the mycelium or spawn forming a very thin layer beneath the skin of the leaf, and consisting of minute oval globular, or somewhat angular cells. From this mycelium proceed the asci or spore cases, which are obovate, cylindrical, very obtuse or truncated at the extremity, and each containing eight smooth spherical sporidia of extremely minute dimensions. These sporidia, when they escape from the asci, form a sort of white dust on the leaf. Each sporidium gives off bud-spores, which multiply in their turn till a sort of chain is produced. If the mould does not produce spores it simply renders the leaves blistered, but when the sporidia are formed the leaf is thickened, as well as altered in form. M. Prillieux, it appears from the "Journal of the Central Horticultural Society of France," has confirmed the observations of M. Tulasne, but has in addition determined the existence of a true mycelium or vegetative portion, the slender filaments of which spread even in the central cellular tissues of the leaf, and thereby cause the irregular multiplication of the constituent cells, the consequent thickening of tissue, and "puffing" of the leaf.

PRIZES FOR COLLECTIONS OF ECONOMIC ENTOMOLOGY.—We are informed that prizes for collections of economic entomology are offered for competition in 1873 by the Royal Horticultural Society, and the following rules relating thereto have been issued—£10 for a collection of British insects injurious to some one order of plant used for food, as Cruciferae, Leguminosae, or corn; the order may be selected by the competitor. £3 for a miscellaneous collection of British insects injurious to plants used as food. £5 for a collection of British beetles injurious to timber and fruit-trees, either growing or felled. £2 for a collection of British insects injurious to some one timber or fruit-tree. The insects to be exhibited in their various stages of development, accompanied by specimens, models, or drawings of the injuries caused by them. The collections to be sent in, addressed to Mr. James Richards, Assistant Secretary, Royal Horticultural Society, South Kensington, S.W., on or before November 1, 1873.

## TO CORRESPONDENTS.

NEWLY-BROKEN GRASS LAND.—Will you, in your next number, advise me as to the following:—I have just bought a piece of land here which has never been under cultivation, and is covered at present with turf. It appears to be a kind of clayey gravel, and I should be glad of a hint as to the best way to bring it under cultivation. I should like to put potatoes on it, but am informed that newly-broken ground is infested with wireworm. What is the best plan to eradicate them? Will the Early Rose be a good potato to try, and will the land require drain-pipes laid down, as the water lodges on it now in places? It slopes to south-east.—*H. B. H.* [It is quite true that newly-broken grass land is sometimes infested with wireworm, but experience has taught us that, as a rule, it is wise to ignore the vermin, and plant potatoes for a first crop, and risk any injury that wireworm may inflict. We have had so many grand crops of potatoes from newly-broken ground that we have ceased to regard the fear generally entertained, though we are bound to confess that it is well founded. If water lodges on the ground at any time of the year, it is indispensable to the success of your operations that you should drain it effectually, but what size and distance the pipes should be we cannot advise, as we know nothing of the texture of the soil, or the local surroundings. We have within the past few years grown large collections of potatoes on a deep heavy pasture land, every year breaking a fresh piece for the purpose. Our mode of procedure has been to have the ground trenched two spits deep, the turf being turned to the bottom of the trench, then a heavy layer of half-rotten stable-manure being put on the turf spit, and the under spit being put on the top of that, and the whole left in ridges two feet apart. In the dry days of February and March we lay potato sets in the spaces between ridges alternately, and cover from the ridges, but miss every alternate space, so that the rows when planted are

December.

four feet apart. This may appear an extravagant mode of procedure, but it pays well, for the land is in the best possible condition after the potatoes come off for regular routine cropping. The trenching should be done in autumn, or at latest in winter. The Early Rose will probably suit you, but we should prefer Paterson's Victoria.

**PIT FOR BEDDING PLANTS.**—*A Constant Reader* wishes to build a pit or house for the preservation during winter of bedding plants, etc. He has a vinery heated by hot water, and could put additional pipes through the new structure, to be heated by the same boiler; but, as the exclusion of frost is all that is desired, he wishes to know if it will be sufficient to make the flue of the present chimney run round the new structure, and if so, of what construction, bricks or pipes? There is this difficulty in heating a pit for bedding-plants by a flue from your hot-water apparatus, that during November, December, and January, when you want heat to dry up the damp in the pit, you will not require heat in your vinery, unless you force very early; but, should you do so, you may use the flue, observing so to fix dampers as to be able to turn the heat through the flue, or up the chimney at pleasure; otherwise it would be best to connect a moderate amount of pipe to the boiler, and, by means of valves, turn the heat as required. The waste of heat up chimneys is caused principally through want of skill in the fixers, and their not providing easy access to the flues of the boiler, for the purpose of keeping them clear of soot.

**TREES FOR SHADY BORDERS.**—*Inquirer*.—The following will suit you: *Taxus canadensis*, a beautiful upright yew; *Taxus adpressa*, a still more beautiful dwarf yew, which spreads laterally and almost as flat as a table, and is really fine for a front row; common holly; variegated holly; *American arbor-vita*; *Ligustrum japonicum*, a very beautiful privet; *Ligustrum lucidum sempervirens*, almost as handsome in foliage as a camellia; *Skimmia japonica*, very dwarf, and a wonderful bearer of berries; hybrid Rhododendrons; *Berberis japonica*; *B. fascicularis hybrida*; *B. aquifolium*; variegated box. These will thrive in loam, except the rhododendrons, which require peat. To these you may add common yew, any of the ornamental varieties of bramble, *Hypericum calycinum* and *H. elatior*, and the noble *Cephalotaxus Fortunei*. Beware of conifers, laurels, Portugal laurel, and Laurestinus. You would do well to consult the lists in the "Town Garden;" they include every variety of hard and soft-wooded plants for suburban gardens, and are the result of many years' experimental culture.

**SEEDLING FUCHSIA.**—*A. Smith*.—Your seedling may prove useful as a strong growing wall plant, but there is nothing extraordinary in its throwing out roots like an ivy when kept near a damp wall in a greenhouse. We might name a thousand plants that would behave in the same manner under similar circumstances.

**TROPEOLUM SPECIOSUM.**—*Subscriber* is advised to pot the root at once in a sandy compost, and put it in the greenhouse. It should have very little water until it begins to grow; in fact, only just enough to keep the soil barely moist, to prevent the root shrivelling. The best solanum for winter is the new one offered by Mr. B. S. Williams, of Upper Holloway. Sow the seeds in heat in February or March, and grow on the same as tender bedding-plants until the end of May, and then plant them out. In September take them up, carefully pot them for the greenhouse. The solanums you have are not considered worthy of attention.

**GROUND VINERY.**—*A Constant Reader's* letter will be replied to in an article next month. In the FLORAL WORLD during the year 1866 appeared a series of papers entitled "Grapes for the Million," in which every detail of vine management was treated, whether in greenhouse or ground vinery.

*C. H.*—Your ivy is the one named in Mr. Hlibberd's monograph *pustulata*.

*E. Cattermole*.—There is no such book as you inquire for.

*M. Alexander*.—Fern spores are offered for sale in the seed catalogues of Messrs. Carter and Co., Messrs. Hooper and Co., and Messrs. Barr and Sugden. You have but to select your house, therefore, and obtain for a trifling expense all you desire.

\* \* The FLORAL WORLD volume now completed may be obtained, in handsome binding, price 7s. 6d., through any bookseller; or direct from Messrs. GROOMBRIDGE AND SONS, 5, Paternoster Row, London, E.C.



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